CONTENTS

TRADE NAME	MODEL	SET AND FOLDER No.
Admiral	Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1 Tel. Rec.	271-1
Craftsmen	C-550	271-2
Firestone	4-A-136, 4-A-137	271-3
General Electric	446, 447, 448	271-4
Hallicrafters	621, 622	271-5
Magnavox	Chassis CR-702A, B (260M Series)	271-6
Motorola	CT52M6, HN4M6, HN53M6, SR52M6 (Ch. R16M6 & Pwr. Ch. P6-2, P8-2)	271-7
Philco	C-660 (Code 121)	271-8
Philco	C-663	271-9
RCA Victor	4-X-551, 4-X-552, 4-X-553, 4-X-554, 4-X-555 (Ch. RC-1146)	271-10
Regency	HF-350A	271-11
Silvertone	4068A (Ch. 100.176)	271-12
Silvertone	4110B, 4112B, 5111B, 5113B (Ch. 132.08400, 132.08500) Tel. Rec.	271-13
Stromberg-Carlson	C-3	271-14
Sylvania	568 (Ch. 1-601-4), 5184 (Ch. 1-601-5)	271-15
Truetone	2D2431C Tel. Rec.	271-16
Westinghouse	H-469R12, H-470R12, H-480C12 (Ch. V-2180-13 & V-2235-1)	271-17

PHOTOFACT* Folder

*TRADE MARK

RETMA MEMBER

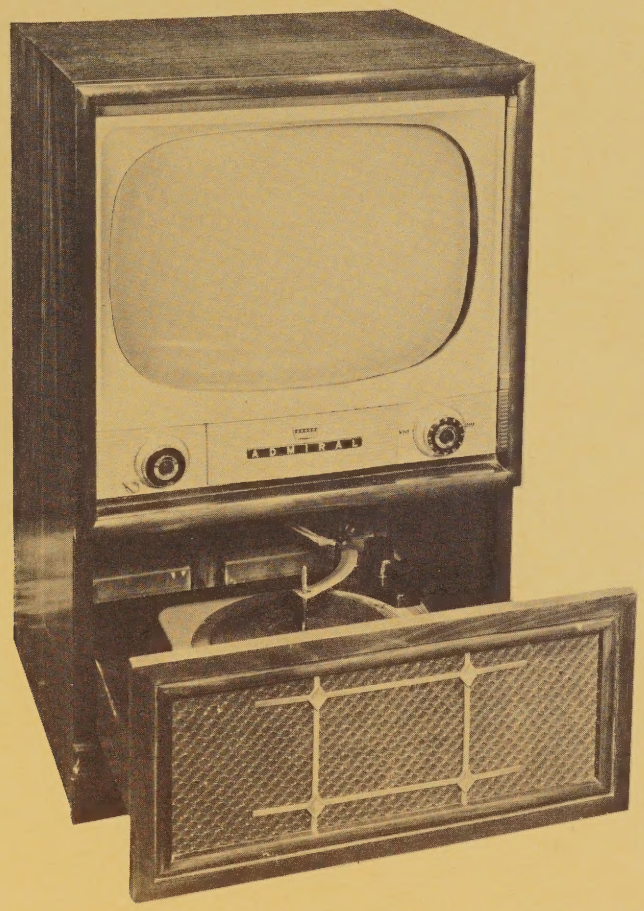
ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1

DENVER, COLORADO
3321 MEADE ST.
L. F. DUNKENSHIP
PROPERTY OF

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL K2216

ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

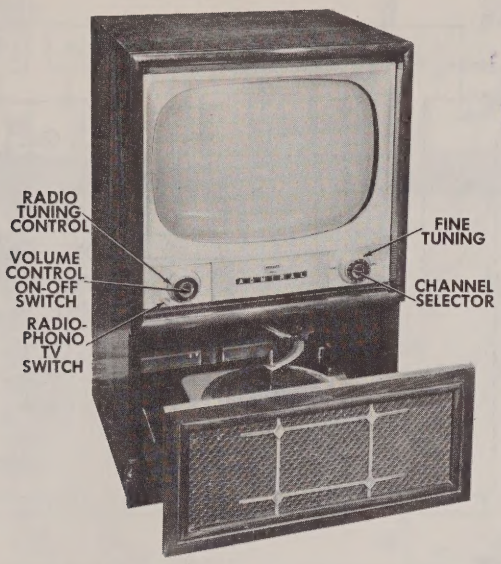
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 3-55 SET 271 FOLDER 1

PHOTOFACT* Folder
*TRADE MARK

ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



ADMIRAL MODEL K2216

TRADE NAME	Admiral	MODELS	CHASSIS	RADIO	RECORD CHANGER
		C2236, C2237, T2215, T2216, T2217, T2218, T2219	19A2, A		
		C2215, C2216, C2217, H2216, H2217	19A2, A, AZ, Z		
		CU2236, CU2237, TU2215, TU2216, TU2217, TU2218, TU2219	19B2, A		
		CU2215, CU2216, CU2217, HU2216, HU2217	19B2, A, AZ, Z		
		K2216, K2217	19D2, A	Built-in AM	RC600
		KU2216, KU2217	19E2, A	Built-in AM	RC600
		L2215Z, L2216Z, L2217Z	19F2AZ, Z	Ch. 3D1	RC600
		K2226, K2227	19G1, A	Built-in AM	RC600
		TU2222, TU2226, 121UDX12	19J1		
		TU2212	19J1A		
		LU2215Z, LU2216Z, LU2217Z	19K2AZ, Z	Ch. 3D1	RC600
		121UDX16L, 121UDX17L, 221UDX15L, 221UDX16L, 221UDX17L, 221UDX26L	19L1		
		321UDX15L, 321UDX16L	19P1	Built-in AM	RC600
		TU1811, TU1812, TU1822, 17UDX11, 17UDX12	19S1		

MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois
TYPE SET	TV-Radio Phono Combination Receiver
TUBES	Twenty-one
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING 1.56 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 25.75MC, Sound IF 21.25MC (Intercarrier) AM Radio 535-1620KC, AM IF 455KC

INDEX

Alignment Instructions 6, 7
Drive Cord Stringing (Radio) 21
Disassembly Instructions 22
Horizontal Sweep Circuit Adjustments 11
Parts List and Descriptions ..... 15 thru 19
Photographs
- Cabinet-Rear View 11
- Capacitor Identification 4, 9
- Chassis-Top View 3
- Radio Chassis (Top & Bottom View) 13
- RF Tuner 10
- Resistor Identification 23, 24

Photographs (Cont)
- Trans., Inductor & Alignment Identification 3

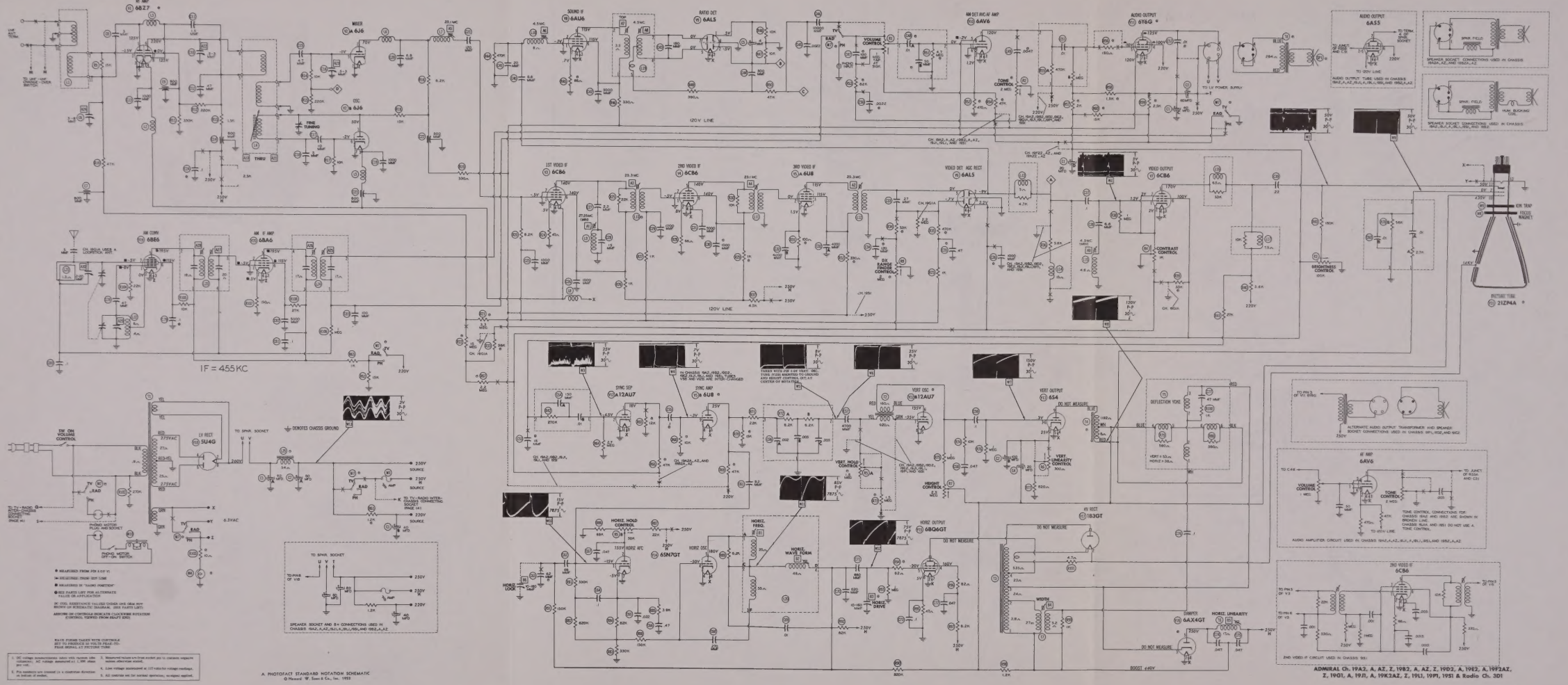
Resistance Measurements 8
Servicing in the Field 22
Schematic (Alternate Tuner) 20
Schematic (Radio) 14
Schematic (TV) 2
Trouble Shooting Aids 12, 21
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube Placement Chart (Top View) 5

FOR SERVICE INFORMATION ON RECORD CHANGER MODEL RC600 SEE PHOTOFACT SET 218, FOLDER 2, OR RECORD CHANGER MANUAL CM-5.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

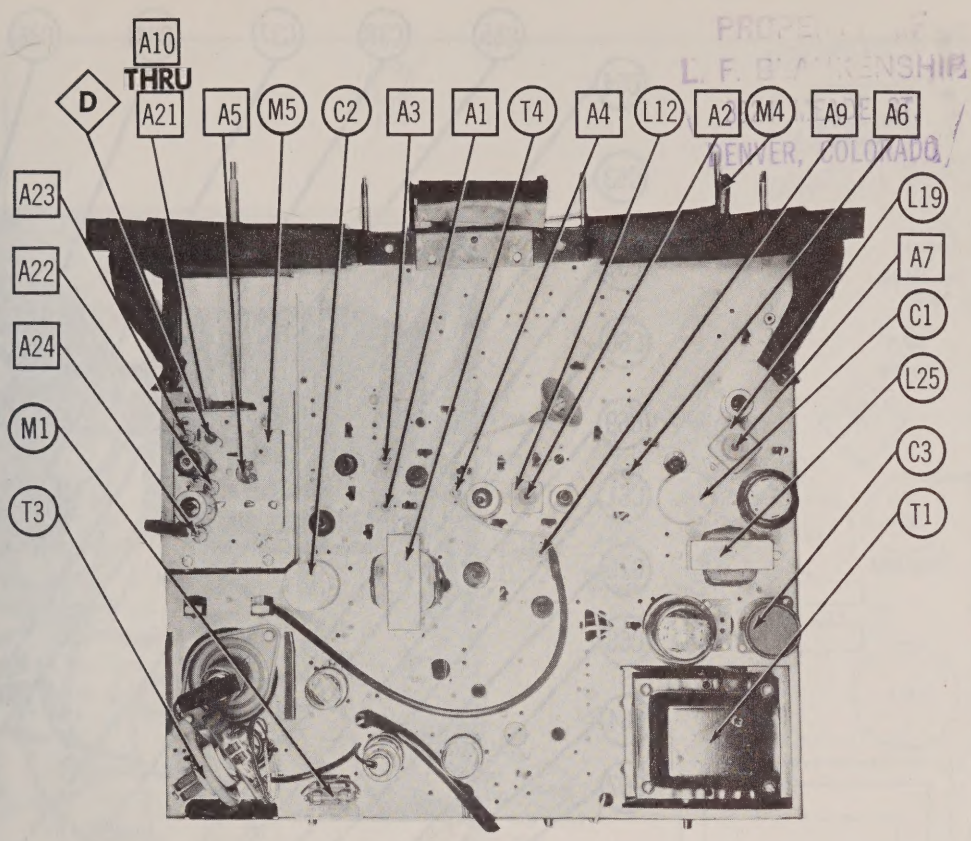
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1

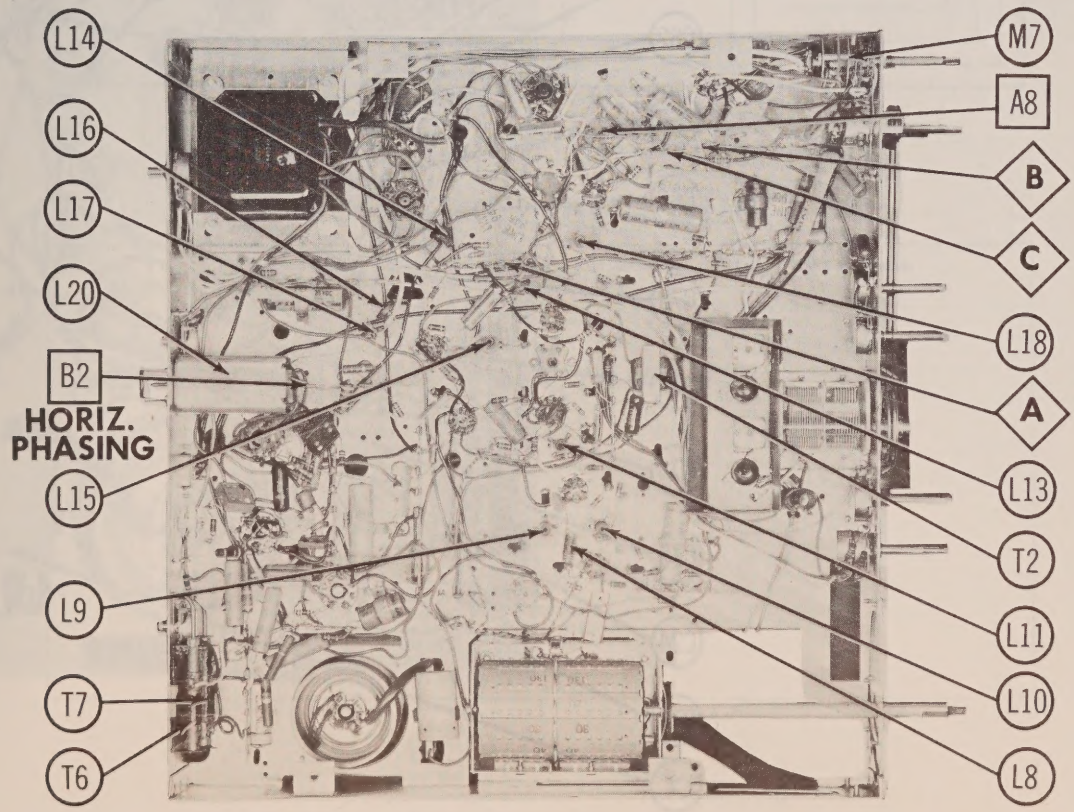

RF AMP 6BZ7
MIXER 6J6
OSC 6J6
SOUND IF 6AU6
RATIO DET 6AL5
AM DET-AVC-AF AMP 6AV6
AUDIO OUTPUT 6Y6G
AUDIO OUTPUT 6AS5
1ST VIDEO IF 6CB6
2ND VIDEO IF 6CB6
3RD VIDEO IF 6U8
VIDEO DET AGC RECT 6AL5
VIDEO OUTPUT 6CB6
AM CONV 6BE6
AM IF AMP 6BA6
IF = 455 KC
SYNC SEP 12AU7
SYNC AMP 6U8
VERT OSC 12AU7
VERT OUTPUT 6S4
HORIZ OSC 6SN7GT
HORIZ OUTPUT 6BQ6GT
HV RECT 1B3GT
DAMPER 6AX4GT
HORIZ LINEARITY
PICTURE TUBE 21ZP4A
LF RECT 5U4G
SW ON VOLUME CONTROL
TO SPKR SOCKET
DENOTES CHASSIS GROUND
TO TV-RADIO INTER-LOCK SOCKET (SEE PAGE 14)
PHONO MOTOR ON SWITCH
PHONO MOTOR AND SOCKET
TO PHONO PICK-UP
SPEAKER SOCKET AND B+ CONNECTIONS USED IN CHASSIS 19A2, A, AZ, Z, 19J1, A, 19J, K, 19S, AND 19S2, A, AZ
TO PIN 5 OF V12
TO PIN 6 OF V12
TO PIN 5 OF V13
TO PIN 6 OF V13
TO PIN 3 OF V11 SCREEN
ALTERNATE AUDIO OUTPUT TRANSFORMER AND SPEAKER SOCKET CONNECTIONS USED IN CHASSIS 19P1, R5E, AND W2E
AUDIO AMPLIFIER CIRCUIT USED IN CHASSIS 19A2, A, AZ, J, R, 19J1, A, 19S, L, AND 19S2, A, AZ
TONE CONTROL CONNECTIONS FOR CHASSIS 19AZ AND 19S2 ARE SHOWN IN BROKEN LINE. CHASSIS 19AA AND 19J1 DO NOT USE A TONE CONTROL.
2ND VIDEO IF CIRCUIT USED IN CHASSIS 19S
DO NOT MEASURE
BOOST 690V
ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 1951 & Radio Ch. 3D1

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1951

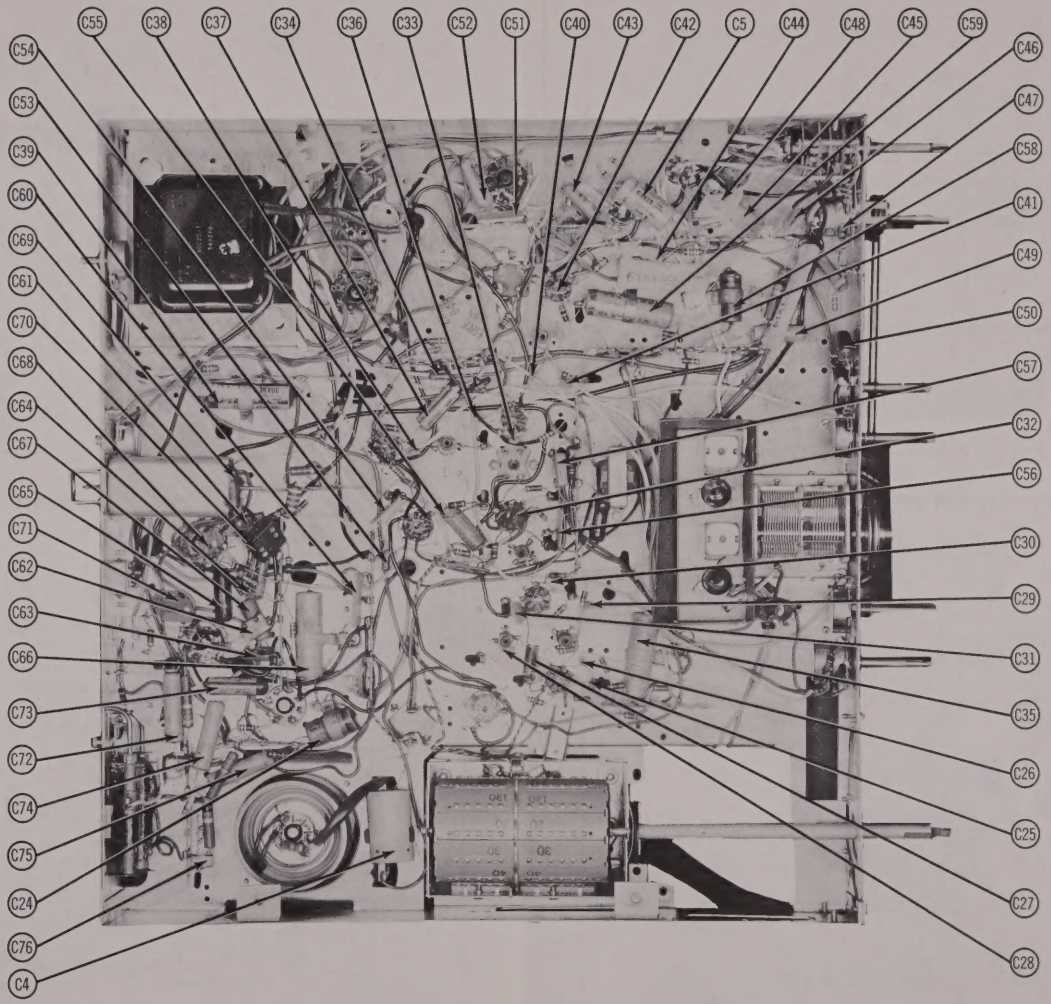
ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 1951 & Radio Ch. 3D1



CHASSIS-TOP VIEW



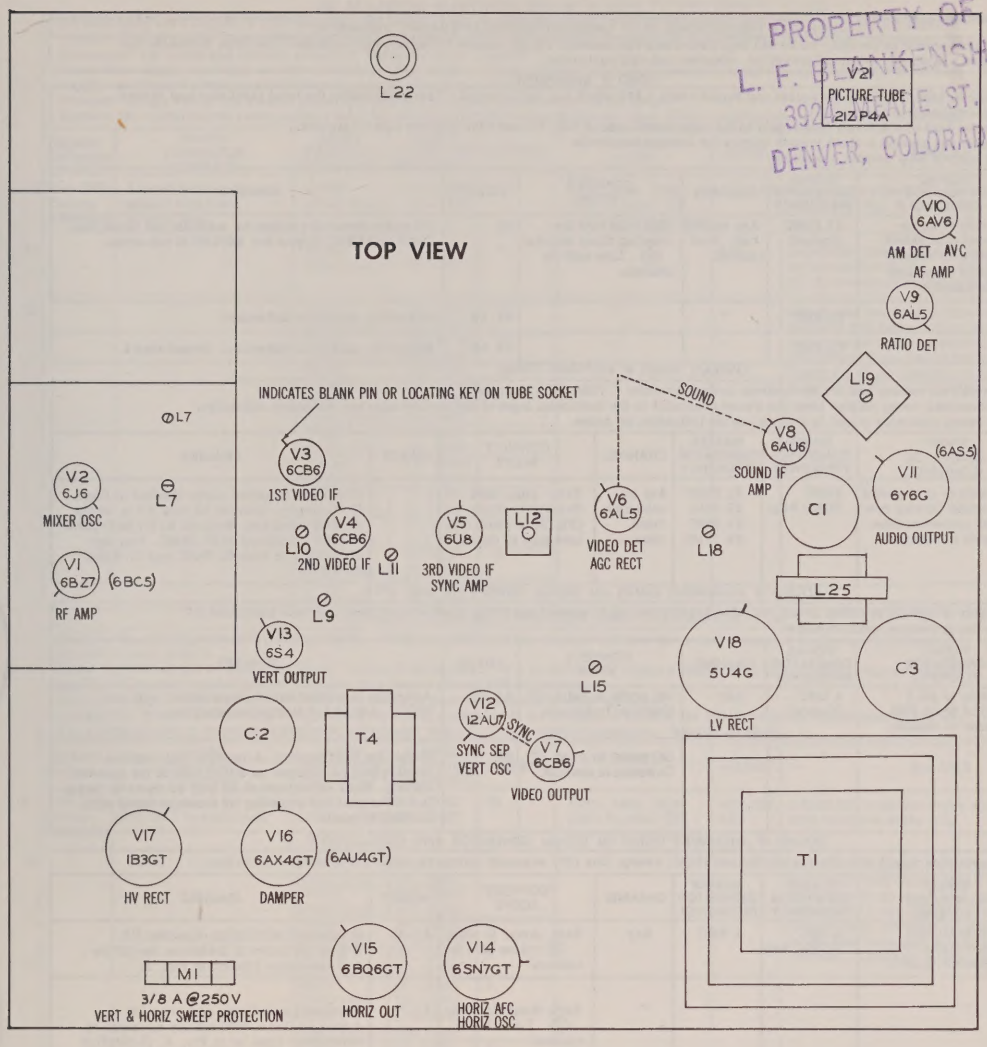
CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TUBE PLACEMENT CHART



PROPERTY OF
L. F. BLANKENSHIP
3924 [illegible] ST.
DENVER, COLORADO

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V18

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V6, V11
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V7, V21
Has pic, no sound - V8, V9, V10, V11

SYNC FAILURE
No vert. sync - V5, V12
No horiz. sync - V5, V14
No vert. or horiz. sync - V5, V12

SWEEP FAILURE
No raster, has sound - V14, V15, V16, V17, V21, Fuse (M1)
No vertical deflection - V12, V13
Poor vert. linearity or foldover - V12, V13
Poor horiz. linearity or foldover - V14, V15, V16
Narrow picture - V14, V15, V16, V17, V18
Vert. off freq. - V5, V12
Horiz. off freq. - V5, V14

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS--READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube (V14) to disable the high voltage. Allow a 15 minute warm-up period for receiver and test equipment.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 4.5 volt bias supply to the ungrounded side of C35. Connect the positive side to chassis.
Remove the antenna and connect a short jumper across the antenna terminals.
Set the contrast control fully counter clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	27.25MC (Unmod)	Any unused high band channel	High side thru decoupling filter to point A. Low side to chassis.	A1	Attenuate generator output to maintain not more than 1 volt at VTVM. Adjust for MINIMUM deflection.
2.	"	"	25.3MC	"	"	A3, A3	Adjust for maximum deflection.
3.	"	"	23.1MC	"	"	A4, A5	Adjust for maximum deflection. Repeat step 1.

OVERALL VIDEO IF RESPONSE CHECK

Connect the 4.5 volt bias battery and set the contrast control as under " Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide usable indication on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Direct	High side to ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	21.25MC 22.0MC 24.3MC 25.75MC	Any unused high band channel	Vert. Amp. thru decoupling filter (Fig. 2) to point A. Low side to chassis.		Check for response curve similar to Fig. 1. If necessary, retouch A2 thru A5 to obtain desired response. Retouch A1 for MINIMUM marker amplitude at 27.25MC. Use high scope gain to view 21.25MC and 27.25MC markers.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

If a signal generator of crystal accuracy is not available restore the set to normal operating condition and tune in a tone modulated TV signal and follow the procedure outlined below.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.	.01MFD	High side to pin 2 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point B. Common to chassis.	A6, A7	Attenuate generator output to maintain 1 volt at VTVM. Adjust for maximum deflection.
6.	"	"	"	"	DC probe to point C. Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Final adjustment of A8 may be made by tuning in a TV signal and adjusting A8 clearest sound with MINIMUM buzz.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	.01MFD	High side to pin 2 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. to point B. Low side to chassis.	A6, A7	Disconnect stabilizing capacitor C5. Adjust for curve of maximum amplitude and symmetry similar to Fig. 3.
6.	"	"	"	"	"	Vert. Amp. to point B. Low side to chassis.	A8	Reconnect stabilizing capacitor C5. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 4. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.01MFD	High side to pin 2 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point B. Common to chassis.	A9	Connect a 10MMF capacitor from pin 8 (plate) of 6CB6 (V7) to pin 7 (cathode) of 6AU6 (V8). Adjust A9 for MINIMUM deflection. Remove 10MMF capacitor from plate to cathode of V7 and V8.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
The channel oscillator adjustment screws are reached thru a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible thru this hole as the channel switch is turned to each channel.
Leave the bias supply connected as under "Video IF Alignment".
Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with the characteristic impedance, usually 50 ohms.
Set the fine tuning control in the mid-position of its range.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8. Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru decoupling network (Fig. 2) to point A. Low side to chassis.	A10	Adjust to place video marker at 50% on response curve as in Fig. 5. Sound marker should fall below 5%.
		207MC (10MC Swp)	205.25MC 209.75MC	12		A11	
		201MC (10MC Swp)	199.25MC 203.75MC	11		A12	
		195MC (10MC Swp)	193.25MC 197.75MC	10		A13	
		189MC (10MC Swp)	187.25MC 191.75MC	9		A14	
		183MC (10MC Swp)	181.25MC 185.75MC	8		A15	
		177MC (10MC Swp)	175.25MC 179.75MC	7		A16	
		85MC (10MC Swp)	83.25MC 87.75MC	6		A17	
		79MC (10MC Swp)	77.25MC 81.75MC	5		A18	
		69MC (10MC Swp)	67.25MC 71.75MC	4		A19	
		63MC (10MC Swp)	61.25MC 65.75MC	3		A20	
		57MC (10MC Swp)	55.25MC 59.75MC	2		A21	

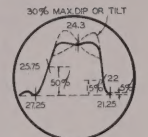


FIG. 1

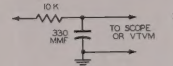


FIG. 2

FIG. 3

FIG. 4

FIG. 5

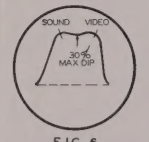


FIG. 6

RF AND MIXER ALIGNMENT FOR SETS USING TUNERS 96D46-2, -3 AND -4

On sets using the all channel UHF tuner A3989, A4000 or A4160 set the channel selector and sweep generator to channel 8 instead of channel 10 as in step 9. In step 10 set the channel selector and sweep generator to channel 8 instead of channel 6. See "Oscillator Alignment" for sweep and marker generator frequencies for channel 8.
Leave bias supply connected as under "Video IF Alignment". If it is difficult to obtain a usable response on scope remove the bias supply and connect a short jumper from the ungrounded side of C35 to chassis.
Use only enough sweep and marker generator output to provide usable indication on scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10KΩ to point D. Low side to chassis.	A23, A23 A34	Alternately adjust A23 and A33 for response similar to Fig. 6 with markers above 90%.
10.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	8	"	A34	Adjust for maximum amplitude response curve similar to Fig. 6. Recheck channel 10. If necessary repeat step 9.
11.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 6. If markers fall below 70% on any channel make compromise adjustments of A23, A33 and A34 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
			207MC (10MC Swp)	205.25MC 209.75MC	12			
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

RF AND MIXER ALIGNMENT FOR SETS USING TUNERS 94D62-1, -2

On set using the all channel UHF tuner #3989, A4000 and A4160 set the channel selector and sweep generator to channel 8 instead of channel 10 as in step 9.
Leave the bias supply connected as under "Video IF Alignment". If it is difficult to obtain a usable response on scope remove the bias supply and connect a short jumper from the ungrounded side of C35 to chassis.
Use only enough sweep and marker generator output to provide usable indication on scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with the characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10KΩ to point D. Low side to chassis.	A23, A23, A34	Adjust for response curve similar to Fig. 6. with markers above 90%.
10.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response curve similar to Fig. 6. If markers fall below 70% on any channel make compromise adjustments of A23, A33 and A34 with channel switch set to that channel. Recheck all other channels to see that they have not been seriously affected. Continue alignment with Step 12.
			207MC (10MC Swp)	205.25MC 209.75MC	12			
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

UHF TUNER ALIGNMENT

The UHF tuner portion of this receiver has been properly aligned at the factory and is very stable.
Alignment of this portion should not be attempted in the field. In cases where alignment becomes necessary, the entire UHF tuner unit should be returned to the factory service department.

RADIO ALIGNMENT

Remove the bias battery (or jumper) from C35 to chassis.
Turn the function switch to "Radio" position.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain as output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
12	.1MFD	High side to antenna stator lug on tuning gang. Low side to chassis.	455KC (Unmod)	Radio	Tuning gang fully open	Across voice coil	A25, A26 A27, A28	Adjust for maximum output.
13.	"	"	1620KC	"	"	"	A29	"
14.		Loop	1400KC	"	Tune to 1400KC signal	"	A30	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

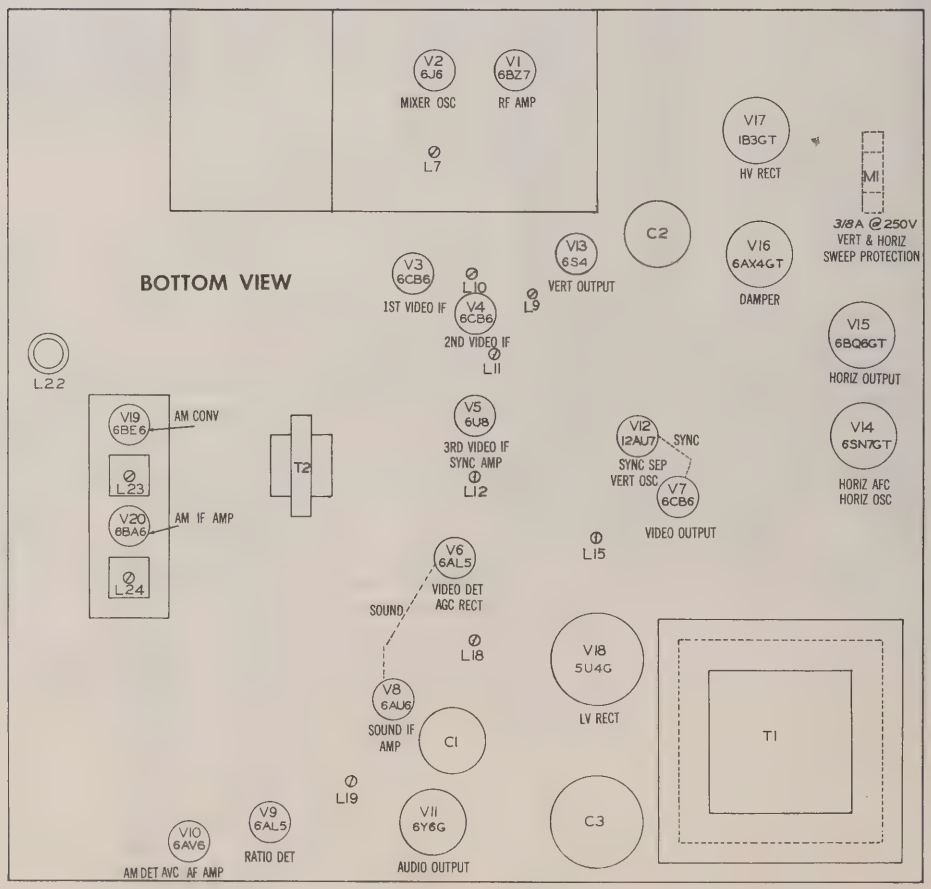
PROPERTY OF
[illegible] TOWNSHIP
2024 MEADE ST.
DENVER, COLORADO

ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 1951 & Radio Ch. 3D1

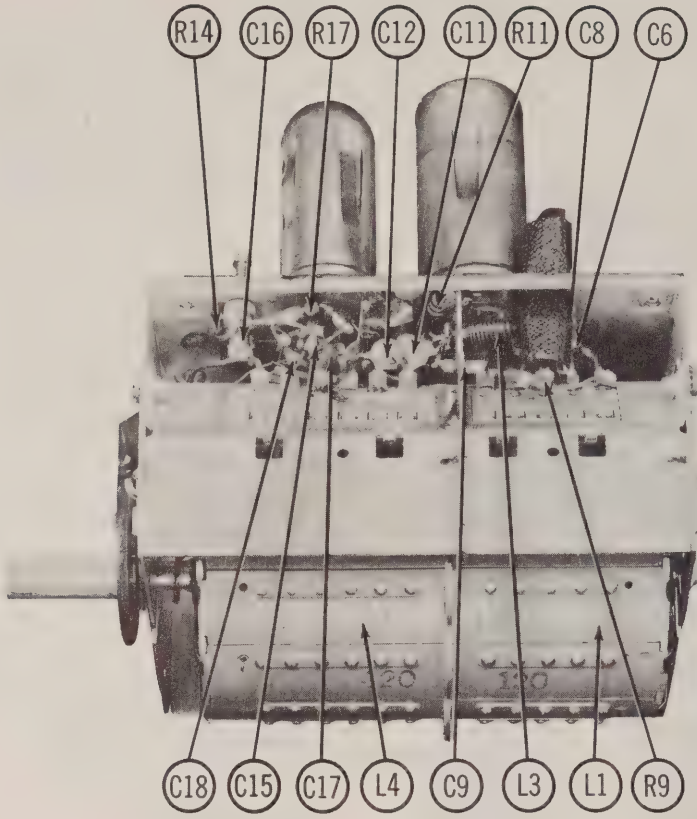
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BZ7	INF	4Meg	0Ω	.1Ω	0Ω	†1.5KΩ	150KΩ	INF	0Ω
V 2	6J6	▲15KΩ	▲8.2KΩ	.1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 3	6CB6	2Meg	47Ω	.1Ω	0Ω	†5.5KΩ	†5.5KΩ	0Ω		
V 4	6CB6	2Meg	68Ω	.1Ω	0Ω	†5.5KΩ	†5.5KΩ	0Ω		
V 5	6U8	†60KΩ	.4Ω	▲330Ω	0Ω	.1Ω	▲330Ω	100Ω	0Ω	10KΩ
V 6	6AL5	800Ω	5.6KΩ	.1Ω	0Ω	.4Ω	0Ω	1.5Meg		
V 7	6CB6	1Meg	200Ω	.1Ω	0Ω	†6.8KΩ	▲3KΩ	200Ω		
V 8	6AU6	470KΩ	0Ω	.1Ω	0Ω	▲330Ω	▲330Ω	68Ω		
V 9	6AL5	10KΩ	10KΩ	.1Ω	0Ω	INF	0Ω	INF		
V 10	6AV6	4.7Meg	470Ω	.1Ω	0Ω	■700KΩ	0Ω	†470KΩ		
V 11	6Y6G	INF	.1Ω	†315Ω	†1.2KΩ	1Meg	1Meg	0Ω	■2.5KΩ 40KΩ	
V 12	12AU7	▲20KΩ	2.7Meg	0Ω	0Ω	0Ω	♦2.3Meg	2Meg	0Ω	.1Ω
V 13	6S4	INF	2KΩ	1Meg	.1Ω	0Ω	1Meg	INF	INF	♦2.5KΩ
V 14	6SN7GT	1.7Meg	†35KΩ	400KΩ	510KΩ	†82KΩ	0Ω	0Ω	.1Ω	
V 15	6BQ6GT	†8.2KΩ	0Ω	♦820KΩ	†8.2KΩ	1Meg	♦820KΩ	.1Ω	47Ω	Top Cap ♦23Ω
V 16	6AX4GT	INF	INF	350KΩ	INF	†75Ω	INF	0Ω	.1Ω	
V 17	1B3GT		PINS	1 - 8	HAVE	INFINITE	RESISTANCE			Top Cap ♦558Ω
V 18	5U4G	INF	30KΩ	INF	27Ω	INF	25Ω	INF	30KΩ	
V 19	6BE6	22KΩ	.4Ω	.1Ω	0Ω	†■2.2KΩ	†■12.2KΩ	■1.7Meg		
V 20	6BA6	■1.7Meg	0Ω	.1Ω	0Ω	†■2.2KΩ	†■29KΩ	150Ω		
V 21	21ZP4A	.1Ω	56KΩ	Pin 10 ♦1.2KΩ	Pin 11 ▲250KΩ	Pin 12 0Ω				

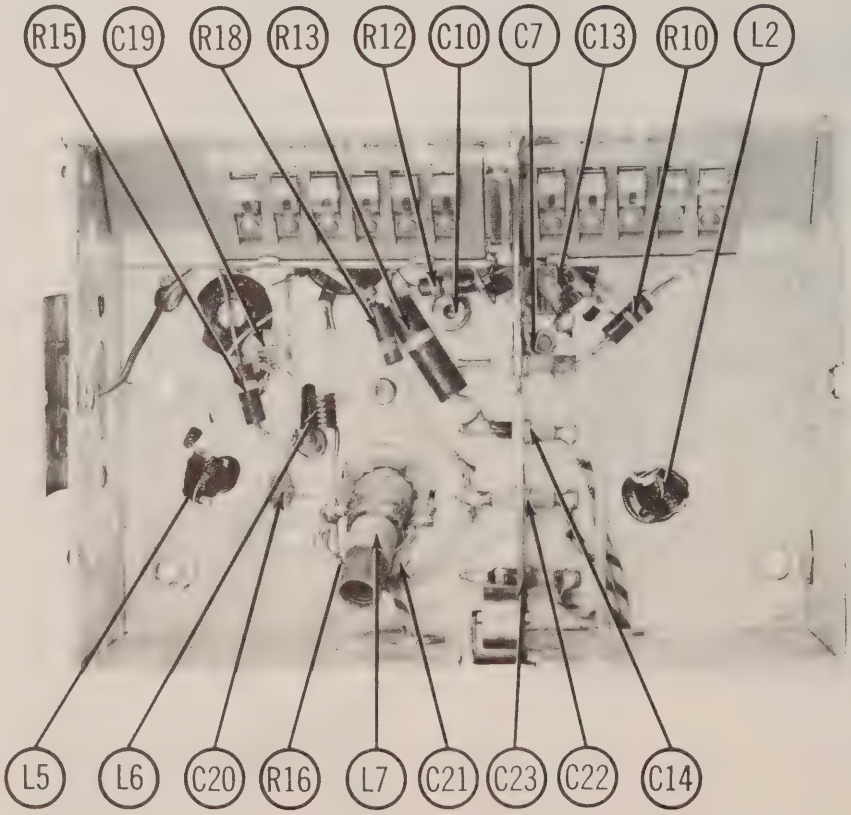
† MEASURED FROM PIN 8 OF V18.
▲ MEASURED FROM 120V LINE.
■ MEASURED IN "RADIO" POSITION.
♦ MEASURED FROM PIN 3 OF V16.
ALL MEASUREMENTS TAKEN IN "TV" POSITION UNLESS OTHERWISE DESIGNATED.



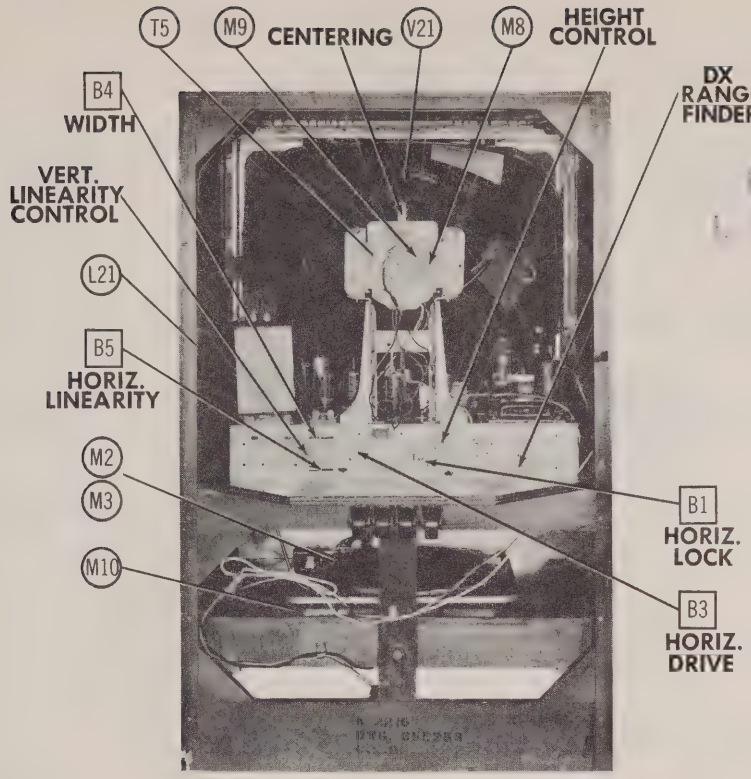
TUBE PLACEMENT CHART



VHF TUNER-RIGHT SIDE



VHF TUNER-BOTTOM VIEW



PROPERTY OF

CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.
Check the horizontal holding action as follows:

(A) The picture should remain stable throughout complete rotation of the horizontal hold control on strong and medium signals.

(B) The picture should remain stable through 1/2 to 3/4 rotation of the horizontal hold control on weak signals.

If the picture jitters, bends or loses sync while making the checks in (A) or (B) horizontal sync adjustment should be made as outlined in the following steps:

(1) Set the DX range finder to "0" position and adjust the contrast control for normal picture.

NOTE: In some chassis (stamped Run 1) the horizontal hold control has been wired in reverse. The blue wire should be connected to the lug nearest the bottom edge of the chassis and the 68KΩ resistor should be connected to the lug nearest the top of the chassis. Be sure to check these connections since it may be impossible to make the following adjustments properly.

(2) Connect the high side of vertical amplifier of oscilloscope thru a 10MMF capacitor to terminal "C" of L20. Connect low side to chassis.

(3) Adjust the horizontal waveform slug (B2) for waveform similar to Fig. 7. Keep the picture in sync while making this adjustment by turning the horizontal frequency slug (B1) or the lock range trimmer (B6). (Later model sets do not have a lock range trimmer). Remove the scope.

(4) Turn the horizontal hold control maximum counter clockwise. If picture does not lose sync switch off channel and back again or adjust B1 until 4 or 5 bars appear sloping downward to the left.

(5) Turn the horizontal hold control slowly clockwise.until picture falls into sync. If set has horizontal lock range trimmer it is properly adjusted if 2 or 3 bars are present. Turn the horizontal hold control fully counter clockwise and adjust B1 until picture falls into sync.

(6) If more than 3 bars were present in step 5 turn the lock range trimmer (B6) slightly clockwise. If less than 2 bars were present turn B6 slightly counter clockwise. Repeat steps 4 and 5.

The horizontal holding action should now be as outlined in paragraphs (A) and (B) above.
If the horizontal holding action is still not satisfactory set the horizontal hold control to the point where the picture just loses sync or becomes unstable and adjust B1 until the picture falls into sync. Repeat this procedure until proper holding action is obtained.

HORIZONTAL DRIVE ADJUSTMENT

Switch channel selector to an unused channel. Turn contrast and horizontal hold controls fully counter clockwise, and set the brightness control below average setting. Adjust the horizontal drive trimmer (B3) counter clockwise as far as possible without the presence of vertical white lines or compression near the center of the picture. Adjust the width control slug (B4) for a picture slightly wider than necessary to fill the picture mask horizontally. Adjust the horizontal linearity slug (B5) for picture that is symmetrical from left to right.

ADJUSTMENT OF CURVATURE CORRECTING MAGNETS FOR SETS USING 24" PICTURE TUBES

These magnets are located above and below the deflection yoke. A red dot will be found on one pole of each magnet. The red dot on the top magnet should be to the right and the red dot on the lower magnet should be to the left as the chassis is viewed from the rear.

(A) Adjust the controls for a normal picture.

(B) Move either magnet away from the picture tube and note the scanning lines on the same side of the picture that the magnet is located. Slowly move the magnet forward until curvature of the scanning lines is removed. Do not move the magnets too close to the picture tube as this may cause the corners to become shaded.

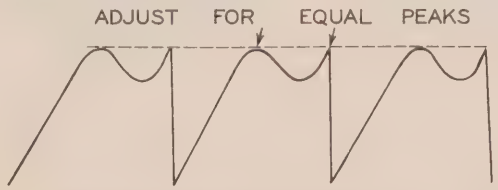


FIG. 7

SET 271 FOLDER 1

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V15, V16 and V18. Check adjustments B3, B4 and B5. Check T3, T5A, R96, R97, R95, C73, C71 and other associated components.

DRIVE LINES

Check by substitution V15 and V16 . Check adjustments B3 and B5. Check R96, R97, C71, C73 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V15 and V16. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V14, V15 and V16. Check C64 for open. Check L20, C68, R89 and other associated components.

XMAS TREE EFFECT

Check by substitution V14, V15 and V16. Check T3 and T5A for internal arcing. Check L20, C68, C69, C71, R89, R92 and other associated components.

VERTICAL

LOSS OF SWEEP

Check by substitution V12 and V13. Check waveform W7.

If Satisfactory	If Unsatisfactory
Check T4, T5B, R6, R77, C4, C2B and other associated components.	Check T2, R75, R7, R98, C59 and other associated components.

INSUFFICIENT SWEEP

Check by substitution V12 and V13. Check height and vertical linearity controls for proper operation. Check T3, T4B, R75 and other associated components.

COMPRESSED AT BOTTOM

Check by substitution V12 and V13. Check R98, R75, R7, T2 and other associated components.

COMPRESSED AT TOP

Check by substitution V12 and V13. Check C2B, R77, R6, T4 and other associated components.

FOLDS

Check by substitution V12 and V13. Check R74, R77, C58, T4 and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V12 and V5. Check C54B, C55, R66, R69, R65 and other associated components.

LOSS OF VERTICAL SYNC - HORIZONTAL SYNC SATISFACTORY

Substitute V12. Check waveform W5.

If Satisfactory	If Unsatisfactory
Check T2, R5A, R73 and other associated components.	Check vertical integrator network for component failure or change of value.

LOSS OF HORIZONTAL SYNC - VERTICAL SYNC SATISFACTORY

Substitute V14. Check C61, C62, C67, R5B, R87 and other associated components.

HORIZONTAL BENDING

Check by substitution V5, V12 and V14. Check horizontal AFC network.

VIDEO

LOSS OF VIDEO

Substitute V7. Check C37, C39, R41, R40, L17, L16 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A9. Check video IF alignment.

POOR CONTRAST

Check by substitution V6 and V7. Check contrast control. Check picture tube. Check C37, L14, R39 and other associated components.

NEGATIVE PICTURE

Substitute V7. Check picture tube and video detector network. Check C37, C39 and L16. Check video IF alignment.

SMEAR

Substitute V7. Check L13, L14, L16, L17, C37, C39 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5, V6 and V7 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V8, V9, V10 and V11. Check stages V10 and V11 using audio signal generator. Apply audio signal across R1.

If Satisfactory	If Unsatisfactory
Check ratio detector and audio IF stages for component failure or change of value.	Check C51, C52, C3, C48A, R55A, R61, T8, speaker and other associated components.

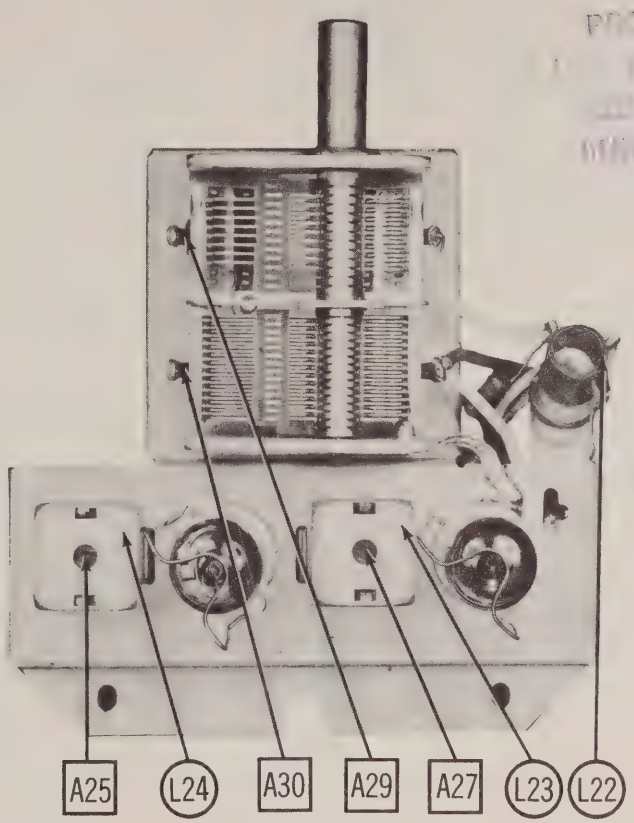
BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustment A8. If still unsatisfactory, check audio IF alignment.

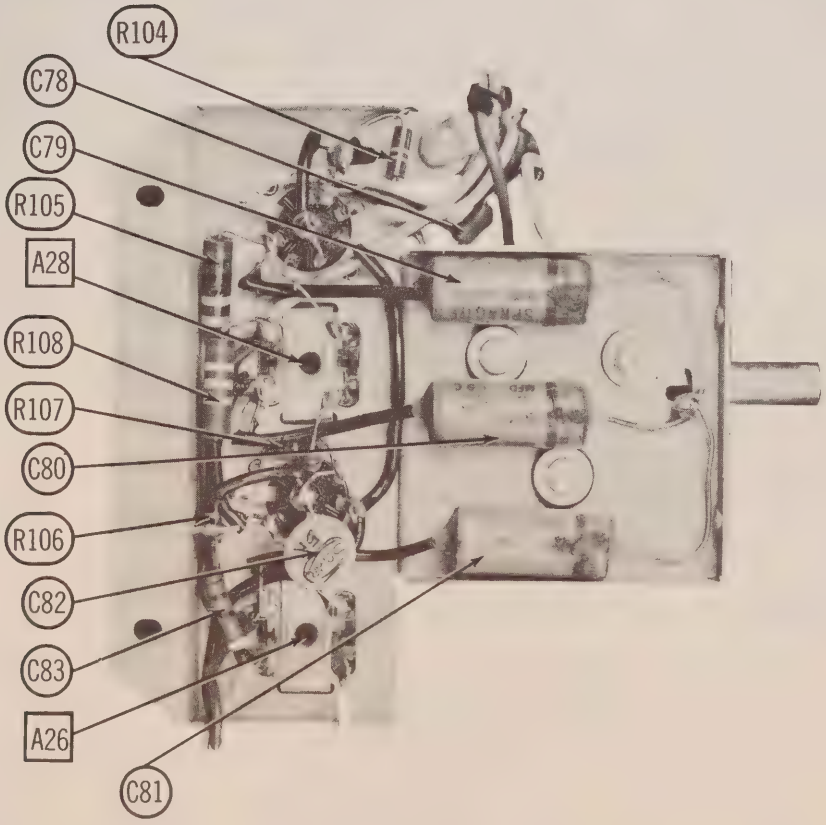
DISTORTED

Follow procedure outlined under "Weak or No Sound".

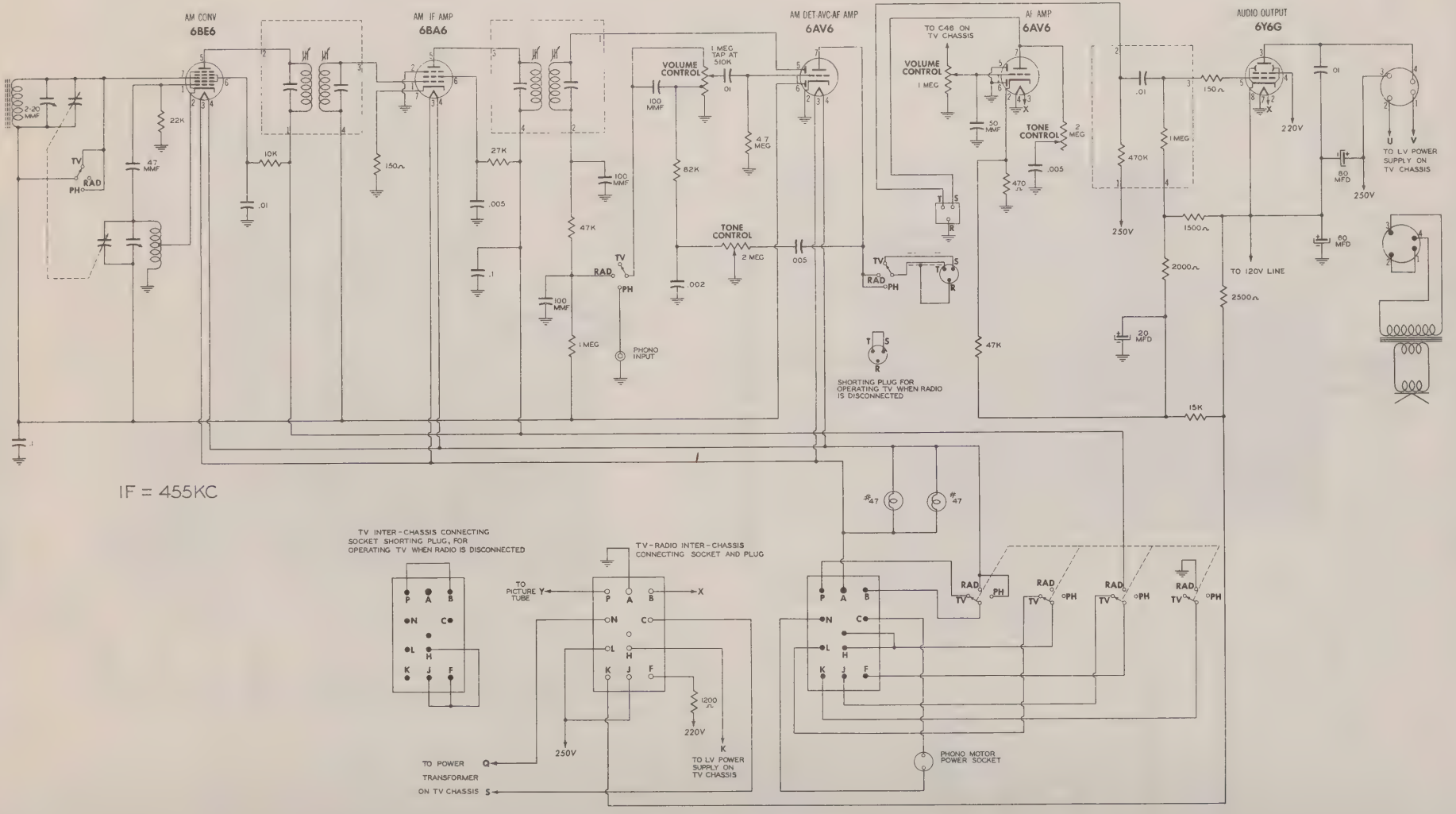
PROD
[illegible] SHIP
[illegible] BARCLAY ST.
DENVER, COLORADO



RADIO CHASSIS-TOP VIEW



RADIO CHASSIS-BOTTOM VIEW



A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1955

RADIO AND TV AUDIO AMPLIFIER USED IN CHASSIS 19F2,Z,AZ, AND 19K2,Z,AZ

RADIO SCHEMATIC

PROPERTY OF
L. F. BL[illegible]NSHIP
[illegible] MAPLE ST.
DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: ADMIRAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amp.	6BZ7	6BZ7	9AJ	6BC5 used in some chassis.
V2	Mixer-Osc.	6J6	6J6	7BF	
V3	1st Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd Video IF Amp.-Sync Amp.	6U8	6U8	9AE	Sync amp. section of 6U8 used as vert. osc. in some chassis
V6	Video Detector-AGC Rectifier	6AL5	6AL5	6BT	
V7	Video Output	6CB6	6CB6	7CM	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Detector	6AL5	6AL5	6BT	
V10	AM Det-AVC-AF Amp.	6AV6	6AV6	7BT	
V11	Audio Output	6Y6G	6Y6G	7S	6AS5 used in "TV only" models
V12	Sync Sep.-Vert. Osc.	12AU7	12AU7	9A	Vert. Osc. section of 12AU7 used as sync amp. in some chassis.
V13	Vert. Output	6S4	6S4	9AC	
V14	Horiz. AFC-Horiz. Osc.	6SN7GT	6SN7GT	8BD	
V15	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V16	Damper	6AX4GT	6AX4GT	4CG	6AU4GT may be used in some chassis
V17	HV Rectifier	1B3GT	1B3GT	3C	
V18	LV Rectifier	5U4G	5U4G	5T	
V19	AM Converter	6BE6	6BE6	7CH	Radio chassis.
V20	AM IF Amp.	6BA6	6BA6	7BK	Radio chassis.

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: ADMIRAL PART No.	CBS-HYTRON PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.	RETMA BASE TYPE	NOTES
V21	21ZP4A	21ZP4A	21ZP4A	21ZP4A	21ZP4A	12N	① Circuit changes necessary
				21ZP4 ①		12D	
	21ZP4B	21ZP4B	21ZP4B	21ZP4B	21ZP4B	12N	
	21WP4	21WP4		21WP4		12N	
				21WP4A		12N	
	17BP4A	17BP4A	17BP4A	17BP4A	17BP4A	12N	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲60	350	67C15-23	AFH3-29		C023		FP375.6	TVL-4609	
B	■40	350		PRS350/30-30		BR6025		TC68		
C	▲60	200								
D	20	150								
C2A	▲80	350	67C15-22	AFH3-142		C109		FP229.8	TVL-3722	
B	▲100	50								
C3	80	350	67C15-64	AFH1-42		XA011		FP138	TVL-1630	
C4	20	475	67A25-1-240	PRS500/20		BR2050		TC83	TVA-1804	
C5	4	50	67A4-9	PRS150/4		BR550		TC30	TVA-1303	
C6	3-9		98A45-96		829-10					
C7	800		94C37-90	EF-001	MFT-1000				503C-D1	
C8	3		94D47-54	SI3NP0	TCZ-3	Z007	NP0K-030	ZT-5533	5TCCB-V33	
C9	800		94C37-90	EF-001	MFT-1000				503C-D1	
C10	.5-3		98A45-23		829-3		3115-01-0R5	CT565A		
C11	1.5		94D46-84	SI1.5NP0	TCZ-1.5	Z004	NP0K-1R5	ZT-5515	5TCCB-V15	
C12	47		94D47-50	BPD-000047	D6-471	G033	801-470	UC-5447	5GA-Q47	
C13	1000		98S45-24	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C14	800		94C37-90	EF-001	MFT-1000				503C-D1	
C15	47		94D47-50	BPD-000047	D6-470	G033	801-470	UC-5447	5GA-Q47	
C16	.5-3		98A45-23		829-3		3115-01-0R5	CT565A		
C17	10		98A45-64	SI10NP0	TCZ-10	Z018	NP0K-100	ZT-541	5TCC-Q1	
C18	5		94D47-52							
C19	1000		98A45-24	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C20	6.8		94D47-53	SI6.8NP0	TCZ-6.8	Z013	NP0K-6R8	ZT-5568	5TCCB-V68	
C21	120		98A45-78	BPD-00012	D6-121	G044	801-121	UC-5312	5GA-T12	
C22	800		94C37-90	EF-001	MFT-1000				503C-D1	
C23	800		94C37-90	EF-001	MFT-1000				503C-D1	
C24	.1	600	64B9-7	P688-1	DF-104	CUB6P1		PT601	6TM-P1	Note 1
C25	1000		65C6-41	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C26	1000		65C6-41	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C27	2.2		65C6-86							
C28	15		65C6-50							
C29	1000		65C6-41	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C30	1000		65C6-41	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	Note 2
C31	5000		65C10-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C32A	4000		65A17-1	BPD-2X004	D6-402	DK078	822-004	DCD-524	5HK-2D4	
B	4000				D6-402					
C33	27		65C6-87							
C34	120		65C6-66	SI120	D6-121	TP35	GP2K-121	UC-5312	5GA-T12	Note 9
C35	.47	100	64A10-1	P288-47		CUB2P47		PT4047	2TM-P47	Note 3
C36	1000		64C6-41	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	Note 9
C37	.1	200	64B9-7	P288-1	DF-104	CUB2P1		PT401	2TM-P1	
C38	6.8		65C6-71	SI6.8NP0	TCZ-6.8		NP0K-6R8	ZT-5568	5TCCB-V68	
C39	.22	400	64B8-24	P488-22		CUB4P22		PT4022	4TM-P22	
C40	6.8		65C6-71	SI6.8NP0	TCZ-6.8	Z013	NP0K-6R8	ZT-5568	5TCCB-V68	
C41	20		65C6-51	SI20NP0	TCZ-20	Z023	NP0K-200	ZT-542	5TCC-Q2	
C42	5000		65C10-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C43	180		65C6-59							
C44	500		65C6-6	SI500	D6-501	K061	GP2K-501	UC-535	5GA-T5	
C45	.0022	600	64B9-17	P688-0022	D6-222	CUB6D22	GP2-333-222	PT6222	6TM-D22	
C46	10000		64B8-13	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C47	100		65C6-3	SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	Note 10
C48A	.01		†63B6-10	†PA-141	DD-103	K082	811-01	DC-511	5HK-S1	Note 4
B	50				D6-500	TP30	GP1K-500	UC-545	5GA-Q5	Note 5
C49	.0047	600	64B9-15	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	Note 13
C50	.0022	600	64B9-17	P688-0022	D6-222	CUB6D22	GP2-333-222	PT6222	6TM-D22	Note 1

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST
DEN

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	VOLT	ADMIRAL Part No.	AEROVOX Part No.	CENTRALAB Part No.	CORNELL DUBILIER Part No.	ERIE Part No.	MALLORY Part No.	SPRAGUE Part No.	NOTES
			REPLACEMENT DATA							
C51	.01	400	#63B6-5	†PA-139	D5-103	CUD8S1	GP2-333-103	PT611	5TM-S1	
C52	.01	400	64B8-15	P688-01	D5-103	CUD8S1	GP2-333-103	PT611	5TM-S1	Note 6
C53	.01	500	65B5-4			12R5Q18				Note 11
C54A	150		#63B6-8	*PA-140	D8-151	TP3S	GP2K-151	UC-5315	5GA-T15	
B	.01				DD-103	K083	811-051	DC-511	5HK-S1	
C55	.1	200	64B9-7	P688-1	DF-104	CUS2P1		PT411	5TM-P1	Note 7
C56A	002				DD-302	K97S	801-002	DC-523	5HK-D5	
B	005		#63C6-11	*PA-130-4	DD-503	K080	811-005	DC-535	5HK-D5	
C	005				DD-502	K080	811-005	DC-535	5HK-D5	
C57	4700	500	63B21-472	1684-005		1R5D47		MC3665	M5-S5	
C58	047	600	64A3-16	P688-047	DF-503	CUS2S47		PT6147	6TM-S47	
C59	1	400	64B9-7	P688-1	DF-104	CUS6P1		PT601	6TM-P1	
C60A	.01		†††63C6-12	††PA-382						
B	.01									
C61	82	500	65B31-830			12R5Q82				
C62	68	500	65B31-680	1469-00007		12R5Q68				
C63	82	500	65B31-830			12R5Q82				Note 8
C64	.1	200	64B9-7	P288-1	DF-104	CUS2P1		PT401	2TM-P1	
C65	022	200	64B9-11	P488-022	DF-203	CUS4S22	81T-02	PT4122	4TM-S22	
C66	47	100	64B9-72	P289-47		CUS4P47		PT4047	4TM-P47	
C67	047	400	64B9-9	P488-047	DF-503	CUS4S47		PT4147	4TM-S47	
C68	270	500	65B21-271	1469-0003		12R5T27		MC3241	M5-S3	
C69	01	400	65A13-6							
C70	820	500	65B21-821			5RST82				
C71	680	500	65B21-681	1479-0007		12R5T68			M5-S7	Note 9
C72	047	400	64A2-14	P488-047	DF-503	CUS4S47		PT4147	4TM-S47	
C73	1	200	64B9-7	P288-1	DF-104	CUS2P1		PT401	2TM-P1	
C74	047	400	64A2-14	P488-047		CUS4S47		PT4147	4TM-S47	
C75	047	400	64A2-14	P488-047		CUS4S47		PT4147	4TM-S47	
C76	.1	400	64B8-7	P488-1	DF-104	CUS4P1		PT601	4TM-P1	
C77	47	1500	65B1-64	HVD15-1500	DD8-470	MC4S47			30GA-Q47	
C78	47		65C6-79	B147	D6-470	TP3S	GP2K-470	UC-5647	5GA-Q47	
C79	1	400	64A2-15	P488-1	DF-104	CUS4P1		PT401	4TM-P1	Note 13
C80	1	400	64A2-15	P488-1	DF-104	CUS4P1		PT401	4TM-P1	
C81	1	400	64B9-7	P488-1	DF-104	CUS4P1		PT401	4TM-P1	
C82	5000		65C10-1	BPD-005	DD-502	K080	811-005	DC-535	5HK-D5	
C83	100		65C6-9	S1100	D6-101	TP3S	GP2K-101	UC-581	5GA-T1	

Note 1: Used in combination model only.
Note 2. In chassis 1981, C30 is 1500MMF and is combined with C78 into a dual unit. (part no. 85A17-2).
Note 3. In chassis 1981, C35 is .32MFD (part no. 84B8-26).
Note 4: Used only in chassis having 2 tube AM tuner.
Note 5. When C48A is not used, C48B is a separate unit.
Note 6. Some chassis may use .02MFD in this application.
Note 7. When V12B is used as a sync amp., C55 is a .01MFD part no. 65C10-3.
Note 8. Some chassis may use a variable trimmer (10-160MMF) in this application.
Note 9. Not used in chassis 19G1A.
Note 10. Used only in chassis 18D3, A, 18E2, A and 19P1.
Note 11: Not used in some chassis.
Note 12 Some chassis may use a .01MFD part no 65C10-3 in this application.
Note 13 Not used in chassis 19G1 and 19J1A.
† Items C48A, C48B, R51 are combined in one unit in models having a tube AM tuner
‡ Items C51, R55A R55B are combined in one unit.
* Items C54A C54B, R42 are combined in one unit
Items C56A, C56B, C56C, R72A, R72B are combined in one unit.
†† Items C60A, C60B, R78A, R78B are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	WATTS	ADMIRAL Part No.	IRC Part No.	CLAROSTAT Part No.	CENTRALAB Part No.	MALLORY Part No.	INSTALLATION NOTES
			REPLACEMENT DATA					
R1A	1Meg		75C2-16	Q10-137X	AT-1S	BT-74-S	UT-443	Volume tapped at 500KΩ
B	Shaft		Not Req.	Not Req.	Not Req.	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-1S	Not Req.	U8-26	Attach to R1A
R2A	2Meg		75B13-32	Q11-139	A47-2Meg-S	AB-15	U-56	Tone - Note 3
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R2A
R3A	100Ki		75B13-25	Q11-128	A47-100K-S	AB-40	U-41	Brightness
B	Shaft		Not Req.	Not Req.	KS6-3	AK-4	Not Req.	Attach to R3A
R4A	1000Ω		75B13-31	Q17-108	A47-1000-S	AB-5	U-4	Contrast
B	Shaft		Not Req.	Not Req.	KS8-3	AK-4	Not Req.	Attach to R4A
R5A	1.5Meg		75B17-3	*Q1-400	RTV-394		UF2EL	Vert. Hold - Panel - Note 1
B	50Ki						UB54L	Horiz. Hold - Rear
R6A	3000Ω		75B13-7	Q11-112	A47-3000-S	AB-8	U-6	Vert. Linearity
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R6A
R7A	2.5Meg		75B13-33	Q11-239	A47-2.5Meg-S	AB-43	SU-565	Height
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Attach to R7A
R8A	2Meg		75C1-53	Q11-139	A47-2Meg-S	B-75	U-58	DX Range Finder - Note 2
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R8A

* CONCENTRIC EQUIVALENT KIT: K-2, BASE ELEMENTS & SHAFTS, B11-138 & P1-B1 (PANEL)
B11-123 & R12-129 (REAR)

Note 1: Some versions may use a single 2Meg control part no. 75C13-22 or a 1.5Meg control part no. 75C13-26.
Note 2: Not used in chassis 19G1A.
Note 3: Not used in chassis 1951 and 1951A.

RESISTORS

ITEM No.	RATING OHMS	WATTS	ADMIRAL Part No.	IRC Part No.	NOTES
			REPLACEMENT DATA		
R9	15KΩ		98A45-67	BTS-15K	
R10	47KΩ		98A45-17	BTS-47K	
R11	330KΩ			BTS-330K	
R12	220KΩ			BTS-220K	
R13	1500Ω			BTA-1500	
R14	10KΩ			BTS-10K	
R15	220KΩ			BTS-220K	
R16	9200Ω 5%			BTS-9200 5%	
R17	10KΩ			BTS-10K	
R18	15KΩ		98A45-67	BTS-15K	
R19	330Ω		80B4-331	BTS-330	
R20	9200Ω 5%		80B7-922	BTS-9200 5%	

ITEM No.	RATING OHMS	WATTS	ADMIRAL Part No.	IRC Part No.	NOTES
			REPLACEMENT DATA		
R21	3.3Meg		80B8-335	BTS-3.3Meg	Note 21
R22	15Meg		80B8-156	BTS-15Meg	Note 22
R23	1000Ω		80B8-102	BTS-1000	
R24	47Ω		80B28-45	BTS-47	
R25	22KΩ		80B8-223	BTS-22K	
R26	1000Ω		80B8-102	BTS-1000	
R27	1000Ω		80B8-102	BTS-1000	
R28	68Ω		80B28-44	BTS-68	
R29	1000Ω		80B8-102	BTS-1000	Note 10
R30	10KΩ 5%		80B7-103	BTS-10K 5%	
R31	100Ω		80B8-101	BTS-100	Note 11
R32	330Ω		80B8-331	BTS-330	Note 12

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	WATTS	ADMIRAL Part No.	IRC Part No.	NOTES
			REPLACEMENT DATA		
R33	56KΩ		80B8-563	BTS-56K	Note 23
R34	33KΩ		80B8-333	BTS-33K	Note 24
R35	470KΩ		80B8-474	BTS-470K	Note 13
R36	6800Ω		80B8-682	BTS-6800	
R37	4500Ω	5	81A1-34	PWT-5000	
R38	1Meg		80B8-105	BTS-1Meg	
R39	33KΩ		80B8-333	BTS-33K	Note 3
R40	5600Ω	1	80B14-582		
R41	27KΩ		80B8-273		
R42	270KΩ		*63B6-6	BTS-270K	
R43	180KΩ			BTS-180K	
R44	470KΩ		80B8-474	BTS-470K	
R45	68Ω		80B28-44	BTS-68	Note 14
R46	33Ω		80B8-331	BTS-330	
R47	10KΩ		80B8-103	BTS-10K	
R48	10KΩ		80B8-103	BTS-10K	
R49	1Ki		80B8-191	BTS-190	
R50	47KΩ		80B8-473	BTS-47K	
R51	4.7Meg		†63B6-10	BTS-4.7Meg	Note 17
R52	470Ω		*63B6-4	BTS-470	Note 5
R53	82KΩ		80B8-823	BTS-82K	Note 18
R54	47KΩ			BTS-47K	Note 6
R55A	470KΩ		‡ 63B6-5	BTS-470K	
B	1Meg			BTS-1Meg	
R56	150Ω			BTS-150	Note 19
R57	20000Ω 5%	1	80B7-202	BTS-2000 5%	Note 20
R58	15000Ω 5%	1	80B7-152	BTS-1500 5%	Note 7
R59	2500Ω	7.5	81A1-23		Note 18
R60	15KΩ		80B8-153	BTS-15K	Note 19
R61	1200Ω	5	81A1-10	PWT-1250	Note 23
R62	15KΩ	5	81A1-7		
R63	1000Ω		80B20-102	BTS-1000	
R64	2.7Meg		80B8-275	BTS-2.7Meg	
R65	12KΩ		80B8-123	BTS-12K	Note 1
R66	47KΩ		80B8-473	BTS-47K	Note 1
R67	2.2Meg		80B8-225	BTS-2.2Meg	Note 22
R68	10KΩ			BTS-10K	Note 8
R69	47KΩ			BTS-47K	Note 4
R70	15KΩ		80B8-153	BTS-15K	Note 16
R71	22KΩ		80B8-223	BTS-22K	

† Items R51, C48A, C48B are combined in one unit.
‡ Items R55A, R55B and C51 are combined in one unit.
* Items R42, C54A and C54B are combined in one unit.
Items R72A, R72B, C56A, C56B and C56C are combined in one unit.
†† Items R78A, R78B, C60A and C60B are combined in one unit.
Note 1: Not used in some chassis.
Note 2: Some chassis may use a 1Meg resistor in this application.
Note 3: Chassis 19D2A, AZ may use a 47KΩ resistor in this application.
Note 4: Chassis 19D2A, AZ may use a 15KΩ or a 33KΩ resistor in this application.
Note 5: Chassis 19D2A, AZ may use a 680Ω resistor in this application.
Note 6: Chassis 19A2, A, AZ and 19B2, A, AZ may use a 68KΩ resistor in this application.
Note 7: Chassis using a 6AS5 for audio output may use a 910Ω resistor in this application.
Note 8 When V12B is used as a sync amp., R68 is a 2.7Meg resistor.
Note 9. Some chassis may use a 68Ω resistor in this application.
Note 10: Chassis 1981 may use a 330Ω resistor in this application.
Note 11: Some chassis may use a 150Ω resistor in this application.
Note 12: Some chassis may use a 1.2Meg resistor in this application.
Note 13: Chassis 1951 may use a 82000Ω 2 watt resistor in this application.
Note 14: Some chassis may use a 82KΩ resistor in this application.
Note 15: Some chassis may use a 1.2Meg resistor in this application.
Note 16. Some chassis may use a 18KΩ or 22KΩ resistor in this application.
Note 17: Used only in chassis have 2 tube AM tuner.
Note 18: Used only in chassis 18D3, A, 19E2, A and 19P1.
Note 19: Used only in combination models.
Note 20: Chassis using a 6AS5 for audio output may use a 1500Ω resistor in this application.
Note 21: Chassis 1981 may use a 10MΩ resistor in this application.
Note 22: Not used in chassis 1951.
Note 23: Chassis 19F2, Z, A, Z and 19K2, Z, AZ may use a 2500Ω 7.5 watt resistor in this application.
Note 24: Not used in chassis 19G1A.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	ADMIRAL Part No.	Stancor Part No.	Merit Part No.	Triad Part No.	RCA TYPE No.	Halldorson Part No.	Thordarson Part No.
				REPLACEMENT DATA						
T1	117VAC	550VCT	5VAC	80C35-1	P-8184	P-3077	R-58C①		P9733	25R33 ③④
	① 1.5SA		2.32ADC	② 5A						
	SEC. 3	SEC. 4	SEC. 5							
	6.3VAC									
	② 5A									

① Tape 6.3V② 1.2A parallel and phase 6.3V② 6A windings for sec. #3.
② Used in chassis 19J1A, 19L1, 19P1, 19R2, 19S2Z, 19S2A, 19S2X, 19S2, 19S2A, 19S2Z and 19S2AZ.
③ Drill new mounting holes.
④ Use one 5V winding for sec. #2.
⑤ Parallel and phase 6.3V windings for sec. #3.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	ADMIRAL Part No	Halldorson Part No	Merit Part No	RCA TYPE No	Ram Part No	Stancor Part No	Thordarson Part No	Triad Part No
		REPLACEMENT DATA							
T2	Vert. Osc. Trans.	78A18-4	B6702	A-3003	30P71①				
T3	Horiz. Output Trans.	78D41-1	H941X*①	HVO-32*	230T1*①	V405	A-8125	24A87①	A-97X
T4	Vert. Output Trans.	78D40-2	21804 ①	A-3037①	222T1①	V403	A-8123①	26S52①	A-92X①
		78D40-2 ②				V413①			A-102X①
T5A	Yoke-Horiz. (20MH)	98C51-1	DF605③	MDF-73④	223D1③	DY-11A③	Y-10④	Y70F20/43	DY-11A③	Y-10④	Y-32-1④
B	Vert. (40MH)					⑤			
T6	Horiz. Linearity (1.5-10MH)	94A50-1	RF800②③	MWC-6③	213N1③	20UR15③	WC-8③	WC-32③	WC-13③⑦
T7A	Width-Series Coil (1.2-1.5MH)	94A49-2						WC-34	
B	Width-Parallel Coil (4-26MH)								

① Drill new mounting hole(s).
② Alternate vert.output trans.
③ Remove damping capacitor from trans #1 and #2. Use original horiz. network if necessary.
④ Connect horiz. damping network across terms #3 and #7. Use orig. network if necessary.
⑤ See instructions with unit pertaining to yoke damping network.
⑥ Drill new mounting hole or use original slider and core.
⑦ Connect to coded red and blue terms.
⑧ Connect to terms #3 and #4.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
4	9	4	9	4	4	4	4
3	5	3	5	3	3	3	2
2	3	2	3	2	2	2	3
1	1	1	1	1	1	1	1
Connect Width Coil Across	2 & 1	3 & 1	2 & 1	3 & 1	2 & 1	2 & 1	2 & 1	3 & 1

SPEAKER

ITEM No.	RATINGS SIZE	FIELD	V. C. IMP.	ADMIRAL Part No.	JENSEN Part No.	QUAM Part No.	NOTES
				REPLACEMENT DATA			
SP1	8"	PM	3Ω	76B78-2 ①	6J6	6A1	1 Includes choke and audio output used in models K2226 and K2227.
	5"	PM	3Ω	76B76-2 ②	5J6	5A1	2 Used in models K2216, K2217, KU2216 and KU2217
	5"	PM	3Ω	76B79-1 ③	5J6	5A1	3 Includes choke and audio output used in models T2215, T2216, T2217, T2218, T2219, TU2222, TU2223, TU2226, TU1822, TU1812 and TU1811
	5"	14Ω	3Ω	76B74-1 ④		5S34S	4 Includes choke and audio output used in models 12UDX16K1, 12UDX17L1, TU2225, TU2216, TU2217, TU2218 and TU2219
	10"	PM	3Ω	76B80-1 ⑤	10J11	10A31	5 Used in models 17UDX11, 17UDX12 and 12UDX12
	10"	PM	3Ω	76B90-2 ⑥	10J11	10A31	6 Includes choke and audio output used in models 12UDX15L1, 12UDX16L, 12UDX17L, 12UDX24L, CU2215, CU2216, CU2217, CU2218, CU2237, HU2216 and HU2217
	12"	PM	3Ω	76B77-1 ⑦	12J11	12A31	7 Includes choke and audio output used in models 12UDX15L, 12UDX16L, 12UDX17L, 12UDX24L, CU2215, CU2216, CU2217, CU2234, CU2237, HU2216 and HU2217
	13"	PM	3Ω	76B77-1 ⑧	12J11	12A31	8 Includes choke and audio output used in models L2315Z, L2316Z, L2317Z, LU2315Z, LU2316Z and LU2317Z
							9 Includes choke and audio output used in models 32UDX15L and 32UDX16L.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	ADMIRAL Part No	MEISSNER Part No	MERIT Part No	MILLER Part No.	NOTES
				REPLACEMENT DATA				
L1	Ant. Coil	00 CT	00	98A45-13				Channel 2
L2	RF Coil	00						
L3	Neut. Coil	00						Channel 3
L4	RF, Mixer Grid & Osc. Coil	00		98A45-14				
L5	Fil. Choke	00		94D45-55				
L6	RF Coil	00		94D45-56				
L7	1st Video IF	.7Ω		94D45-85				
L8	Fil. Choke	00		73A5-5	19-3001		4804	.8 Microhenries
L9	27.25MC trap	00		72C96-23	20-1008		6171A ①	
L10	2nd Video IF	.4Ω	.4Ω	72C96-25*				Used with cascode tuners
L11	3rd Video IF	.4Ω	.6Ω	72C96-32	17-1063			
L12	4th Video IF	.4Ω	.6Ω	72B107-1				
L13	Series Peaking Coil	5Ω		73A5-15	19-3180 ②	TV-184 ②	6180 ②	190 Microhenries; Wound on 4, 7KΩ resistor
L14	Shunt Peaking Coil	15Ω		73A5-7	19-3500	TV-188	6174	500 Microhenries
L15	4.5MC Trap	4.6Ω		73B98-6	20-1004	TV-181	1470	
L16	Series Peaking Coil	6.5Ω		73A5-13	19-3300 ②		4565	324 Microhenries; Wound on 33KΩ resistor
L17	Shunt Peaking Coil	7.5Ω		73A5-9	19-1923 ②		4648 ②	370 Microhenries; Wound on 10KΩ resistor
L18	Sound IF	3Ω		73B90-7	20-1006 ②	TV-161	1470	

ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 1951 & Radio Ch. 3D1

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L19	Ratio Det.	3.5Ω	.2CT	72B68-1	17-1003†	TV-110†	1468†	Tertiary winding = .8Ω
L20	Horiz. Osc.	80Ω		69B110	20-1402	TV-162	6183	Horiz. waveform winding = 46Ω
L21	Loop Ant.	1.3Ω		69C155-2				
L22	Osc. Coil	6Ω		69A52-4#			71-Osc.¶	Tapped ⓐ 4Ω
L23	Input IF	16Ω	20Ω	72B28-7	16-6758	BC-352	12-C1	
L24	Output IF	17Ω	17Ω	72B28-7	16-6758	BC-353	12-C2	

* Part no. 72C96-21 used with pentode tuners.
■ Parallel with 4.7KΩ resistor.
▲ Disconnect cap. in parallel.
♦ Parallel with 33KΩ resistor.
● Parallel with 10KΩ resistor.
† Disconnect external cap. if any.
†† Enlarge mounting hole.
# Part no. 69A52-9 used in 3 tube radio (3D1).
¶ Drill mounting hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	ADMIRAL PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L25	.220A	54Ω	1.2HY	74B18-1 (or) 74B18-2	C-2327	C-2994	C-21X ①	C5040	21C41

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ADMIRAL PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	8AG	3/8A 250V	84A4-3	84A5-1	362.375 (3/8A-3AG)	387001	AGX 3/8	4520

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							REMARKS
	ADMIRAL PART No.	ASTATIC PART No.		SHURE PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M2		AC-C-AG-M	A-2	WC36B	A56W	43	0-2 or S-2	

ASTATIC, SHURE AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA				REMARKS
	ADMIRAL PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	
M3		*JP-332 or †JPS-332	*B-416 or †B-419 or ♦B-419D	*W-31AGA or †W-31AGS	* Metal † Jewel ♦ Diamond

MISCELLANEOUS

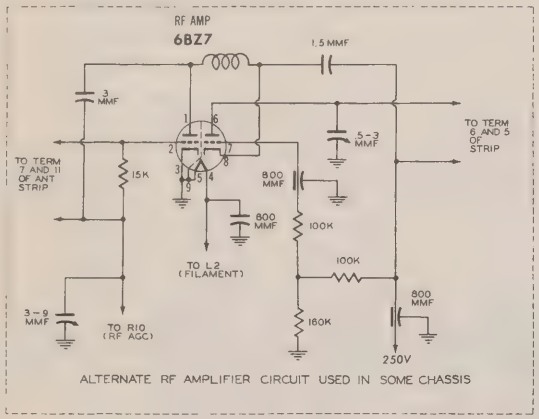
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M4	Dial Light	81A1-8	#47, Bayonet - Not used in some models
M5	Tuner	94D46-4	VHF - Chassis with 20" or 21" picture tubes
	Tuner	94D46-3	VHF - Chassis with 20" or 21" picture tubes
	Tuner	94D46-2	VHF - Chassis with 20" or 21" picture tubes
	Tuner	94D52-2	VHF - Chassis with 17" picture tubes
	Tuner	94D52-1	VHF - Chassis with 17" picture tubes
	Tuner	A3969	UHF - Chassis 19J1, 19J1A, 19P1, 19S1, 19B2, 19B2A, 19B2Z, 19B2AZ, 19K2Z, 19K2AZ, 19L1, 19E2
	Tuner	A4000	UHF - Chassis 19J1, 19J1A, 19L1, 19P1, 19S1, 19B2, 19B2A, 19B2Z, 19B2AZ, 19K2Z, 19K2AZ, 19E2
	Tuner	A4160	UHF - Chassis 19S1, 19J1A, 19B2, 19J1, 19E2, 19L1, 19B2A, 19B2Z, 19B2AZ, 19K2Z, 19K2AZ
	Tuning Cap.	68B53-1	12-422MMF, 17-120MMF (2 tube radio) Alternate part #68B53
	Tuning Cap.	68B32	3 Tube Radio
M6	Switch	77A47	UHF-VHF - Chassis 19B2, 19B2A, 19B2AZ, 19B2Z, 19E2, 19E2, 19E2A, 19K2AZ, 19K2Z, 19S1, 19J1A, 19J1, 19L1, 19P1
M7	Switch	77C43	Function - Chassis 19G1, 19G1A, 19P1K, 19D2, 19D2A, 19E2, 19E2A
	Switch	77B49	Function - Chassis 19F2Z, 19F2AZ, 19K2Z, 19K2AZ
M8	Focus Magnet	94C53-1	Includes centering device
M9	Ion Trap	94A15-3	
M10	Phono Motor	407C20	
B3, B6	Trimmer Cap.	66A30-2	Horiz. Drive (10-160MMF) - Some models use 2 section trimmer cap. (10-160MMF each), horizon lock & horiz. drive (Admiral part #66A32-3)
	Cabinet	34E61-9	Ebony - Models TU181l, 17UDX11
	Cabinet	34E61-10	Mahogany - Models TU1812, 17UDX12
	Cabinet	34E61-12	Mahogany - Model TU1822
	Cabinet	34E57-5	Mahogany - Model TU2212
	Cabinet	34E57-9	Mahogany - Model TU2222
	Cabinet	35E227-11	Mahogany - Model TU2226
	Cabinet	35E245-1	Walnut - Model 321UDX15L
	Cabinet	35E245-2	Mahogany - Model 321UDX16L
	Cabinet	34E57-51	Mahogany - Model 121UDX12
	Cabinet	35E246-2	Mahogany - Model 121UDX16L

PARTS LIST AND DESCRIPTIONS (Continued)

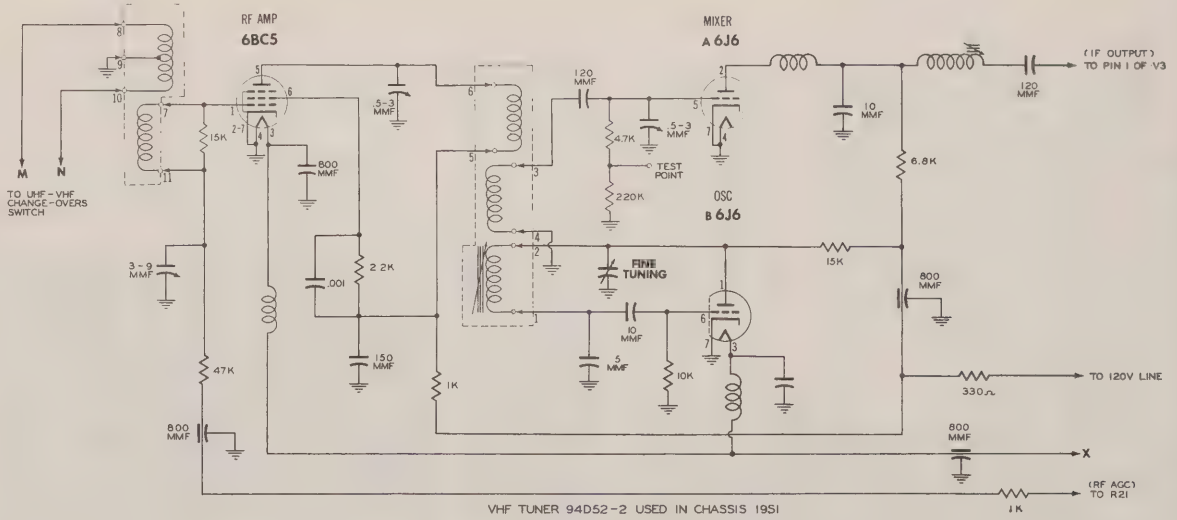
MISCELLANEOUS (cont)

PROPERTY OF
L. F. BLANKENSHIP
3924
DF

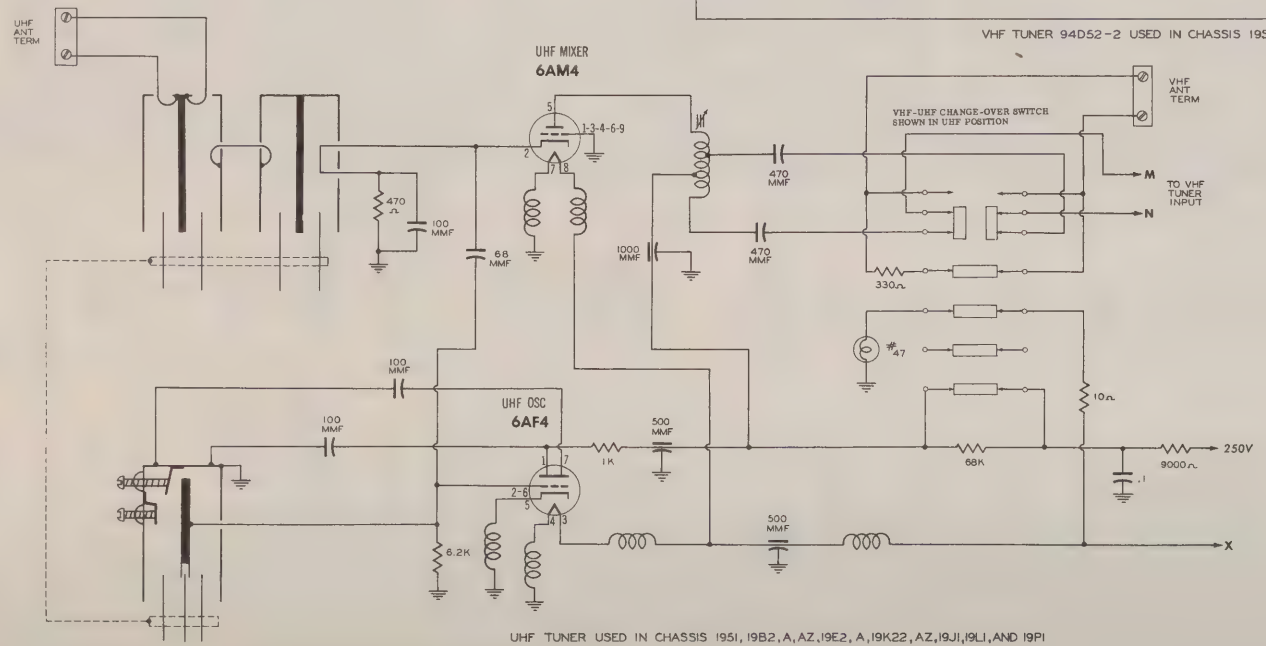
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
	Cabinet	35E246-3	Blonde - Model 121UDX17L
	Cabinet	35E242-1	Walnut - Model 221UDX15L
	Cabinet	35E242-2	Mahogany - Model 221UDX16L
	Cabinet	35E242-3	Blonde - Model 221UDX17L
	Cabinet	35E243-2	Mahogany - Model 221UDX26L
	Cabinet	35E254-1	Walnut - Models L2215Z, LU2215Z
	Cabinet	35E254-2	Mahogany - Models L2216Z, LU2216Z
	Cabinet	35E254-3	Blonde - Models L2217Z, LU2217Z
	Cabinet	35E247-1	Walnut - Models T2215, TU2215
	Cabinet	35E247-2	Mahogany - Models T2216, TU2216
	Cabinet	35E247-3	Blonde - Models T2217, TU2217
	Cabinet	35E247-4	Maple - Models T2218, TU2218
	Cabinet	35E247-5	Ebony - Models T2219, TU2219
	Cabinet	35E248-1	Walnut - Models C2215, CU2215
	Cabinet	35E248-2	Mahogany - Models C2216, CU2216
	Cabinet	35E248-3	Blonde - Models C2217, CU2217
	Cabinet	35E261-2	Mahogany - Models C2236, CU2236
	Cabinet	35E261-3	Mahogany - Models C2237, CU2237
	Cabinet	35E250-2	Mahogany - Models H2216, HU2216
	Cabinet	35E250-3	Blonde - Models H2217, HU2217
	Cabinet	35E275-2	Mahogany - Model K2226
	Cabinet	35E275-3	Blonde - Model K2227
	Cabinet	35E253-2	Mahogany - Models K2216, KU2216
	Cabinet	35E253-3	Blonde - Models K2217, KU2217
	Knob	33D107-7	Radio Tuning - UDX Models, K2216, KU2216, K2217, KU2217
	Knob	33D107-20	Radio Tuning - Models K2216, K2227
	Knob	33B90-4	Function Switch - UDX Models, K2216, KU2216, K2217, KU2217, K2226, K2227
	Knob	33A23-4	DX Range Finder
	Knob	33D107-5	UHF Channel Selector - UDX Models, Models TU1811, TU1812, TU1822, TU2212, TU2222, TU2226, CU2215, CU2216, CU2217, CU2236, CU2237, HU2216, HU2217, KU2216, KU2217, LU2215Z, LU2216Z, LU2217Z, TU2215, TU2216, TU2217, TU2218, TU2219
	Knob	33D107-1	VHF Channel Selector - UDX Models, TU1812, TU1822, TU2212, TU2222, TU2226, CU2215, CU2216, CU1217, CU2236, CU2237, HU2216, HU2217, KU2216, KU2217, LU2215Z, LU2216Z, LU2217Z, TU2215, TU2216, TU2217, TU2218
	Knob	33D107-8	VHF Channel Selector - Models TU1811, TU2219
	Knob	33A109-2	UHF Channel Fine Tuning - UDX Models, TU1811, TU1812, TU1822, TU2226, KU2216, KU2217, LU2215Z, LU2216Z, LU2217Z, TU2215, TU2216, TU2217, TU2218, TU2219, CU2215, CU2216, CU2217, CU2236, CU2237, HU2216, HU2217
	Knob	33A114-3	UHF Channel Fine Tuning - Models TU2212, TU2222
	Knob	A3963	VHF Channel Fine Tuning - UDX Models, TU1811, TU1812, TU1822, TU2212, TU2222, TU2226, KU2216, KU2217, LU2215Z, LU2216Z, LU2217Z, TU2215, TU2216, TU2217, TU2218, TU2219, CU2215, CU2216, CU2217, CU2236, CU2237, HU2216, HU2217
	Knob	33D107-3	On-off-volume - UDX Models, TU1811, TU1812, TU1822, TU2212, TU2222, TU2226, L2215Z, LU2215Z, L2216Z, LU2216Z, L2217Z, LU2217Z, T2215, TU2215, T2216, TU2216, T2217, TU2217, T2218, TU2218, T2219, C2215, CU2215, C2216, CU2216, C2217, CU2217, C2236, CU2236, C2237, CU2233, H2216, HU2216, H2217, HU2217,
	Knob	33D107-4	On-off-volume - Models K2216, KU2216, K2217, KU2217
	Knob	33D107-10	On-off-volume - Model TU2219
	Knob	33D107-34	On-off-volume - Models K2226, K2227,
	Knob	33D107-6	Contrast - UDX Models, TU1811, TU1812, TU1822, TU2212, TU2222, TU2226, L2215Z, LU2215Z, L2216Z, LU2216Z, L2217Z, LU2217Z, T2215, TU2215, T2216, TU2216, T2217, TU2217, T2218, TU2218, T2219, TU2219, C2215, CU2215, C2216, CU2216, C2217, CU2217, C2236, CU2236, CU2237, CU2237, H2216, HU2216, H2217, HU2217
	Knob	33A92-3	Vert. or Focus - UDX Models, K2216, KU2216, K2217, KU2217, L2215Z, LU2215Z, L2216Z, LU2216Z, L2217Z, LU2217Z, K2226, K2227
	Knob	33D107-13	Channel Selector - Models K2216, K2217, L2215Z, L2216Z, L2217Z, T2215, T2215, T2216, T2217, T2218, T2219, C2215, C2216, C2217, C2236, C2237, H2216, H2217
	Knob	33D107-35	Channel Selector - Models K2226, K2227
	Knob	33D107-14	Fine tuning - Models K2216, K2217, L2215Z, L2216Z, L2217Z, T2215, T2216, T2217, T2218, T2219, C2215, C2216, C2217, C2236, C2237, H2216, H2217
	Knob	33D-107-22	Fine tuning - Models K2226, K2227
	Safety Glass	21B65-1	Models TU1811, TU1812, TU1822, 17UDX11, 17UDX12
	Safety Glass	21B65-4	Models 321UDX15L, 321UDX16L, 121UDX16L, 121UDX17L, 221UDX15L, 221UDX16L, 221UDX17L, 221UDX26L
	Safety Glass	21B65-2	Models TU2212, TU2222, 121UDX12
	Safety Glass	21B62-7	Model TU2226
	Safety Glass	21B71-5	Models K2216, KU2216, K2217, KU2217, L2215Z, LU2215Z, L2216Z, LU2216Z, L2217Z, LU2217Z, T2215, TU2215, T2216, TU2216, T2217, TU2217, T2218, TU2218, T2219, TU2219, C2215, CU2215, C2216, CU2216, C2217, CU2217, C2236, CU2236, C2237, CU2237, H2216, HU2216, H2217, HU2217
	Safety Glass	21B62-7	Models K2226, K2227
	Mask	23D145	Models 321UDX15L, 321UDX16L,121UDX16L, 121UDX17L, 221UDX15L, 221UDX16L, 221UDX17L, 221UDX26L
	Mask	23D128	Model TU2226
	Mask	23E152-101	Models K2216, KU2216, K2217, KU2217, L2215Z, LU2215Z, L2216Z, LU2216Z, L2217Z, LU2217Z, T2215, TU2215, T2216, TU2216, T2217, TU2217, T2218, TU2218, T2219, TU2219, C2215, CU2215, C2216, CU2216, C2217, CU2217, C2236, CU2236, C2237, CU2237, H2216, HU2216, H2217, HU2217
	Mask	23D174-3	Models K2226, K2227



ALTERNATE RF AMPLIFIER CIRCUIT USED IN SOME CHASSIS



VHF TUNER 94D52-2 USED IN CHASSIS 1951



UHF TUNER USED IN CHASSIS 1951, 19B2, A, AZ, 19E2, A, 19K22, AZ, 19J1, 19L1, AND 19P1

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1955

ALTERNATE UHF-VHF TUNER SCHEMATIC

TROUBLE SHOOTING AIDS (cont)

PROPERTY OF
L. F. BLANKENSHIP
3324 INCA ST.
DENVER, COLORADO

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on volume control and T1. If filaments light, substitute V18. Check B+ filter and decoupling network.

SMALL AND/OR DIM PICTURE

Substitute V18. Check B+ filter and decoupling network.

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V14, V15, V16 and V17. Check M1 fuse. Check waveform W12.

If Satisfactory	If Unsatisfactory
Check T3, T5A, T6, T7, C76, C74, C75, R98, R96, R97, R95 and other associated components.	Check L20, C71, C69, C67, C68, R90, R87 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V15, V16, V17 and V18. Check adjustments B2, B3, B4 and B5. Check C71, C73, R95, R96, R97 and other associated components.

BLOOMING

Check by substitution V15, V16, V17 and V18. Check C71, C73, R96, R97, T7, T3 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5, V6 and V7. Check video IF components for failure or change of value.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

KEYSTONE EFFECT

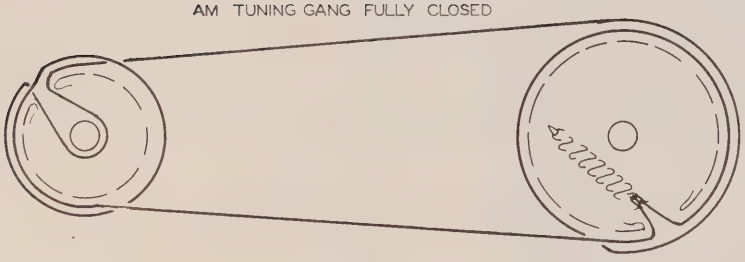
Check T5 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.

AM TUNING GANG FULLY CLOSED



RADIO DRIVE CORD STRINGING

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, thru the small hole in the cabinet to the right of the channel selector shaft.

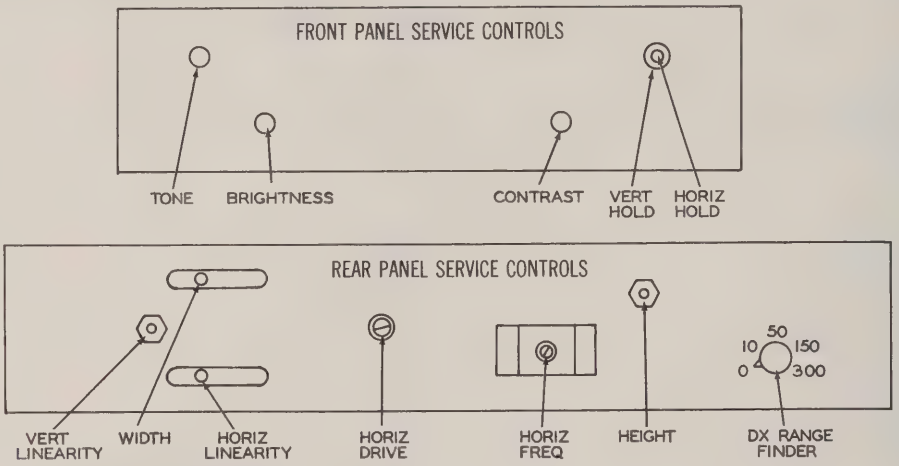
PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions).

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION



DX RANGE FINDER ADJUSTMENT

Reception of weak signals can often be improved by advancing the DX range finder in a clockwise direction. However, if the control is turned too far in this direction the picture may disappear entirely on strong signals.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal oscillator circuit can be made from the rear panel of the chassis. Set the horizontal hold control at the mid-position of its range and adjust the horizontal frequency slug (L20) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L19) located on bottom of chassis. (See tube placement chart).

FUSES

One fuse is used for horizontal and vertical sweep circuit protection. (For location see tube placement chart).

CENTERING

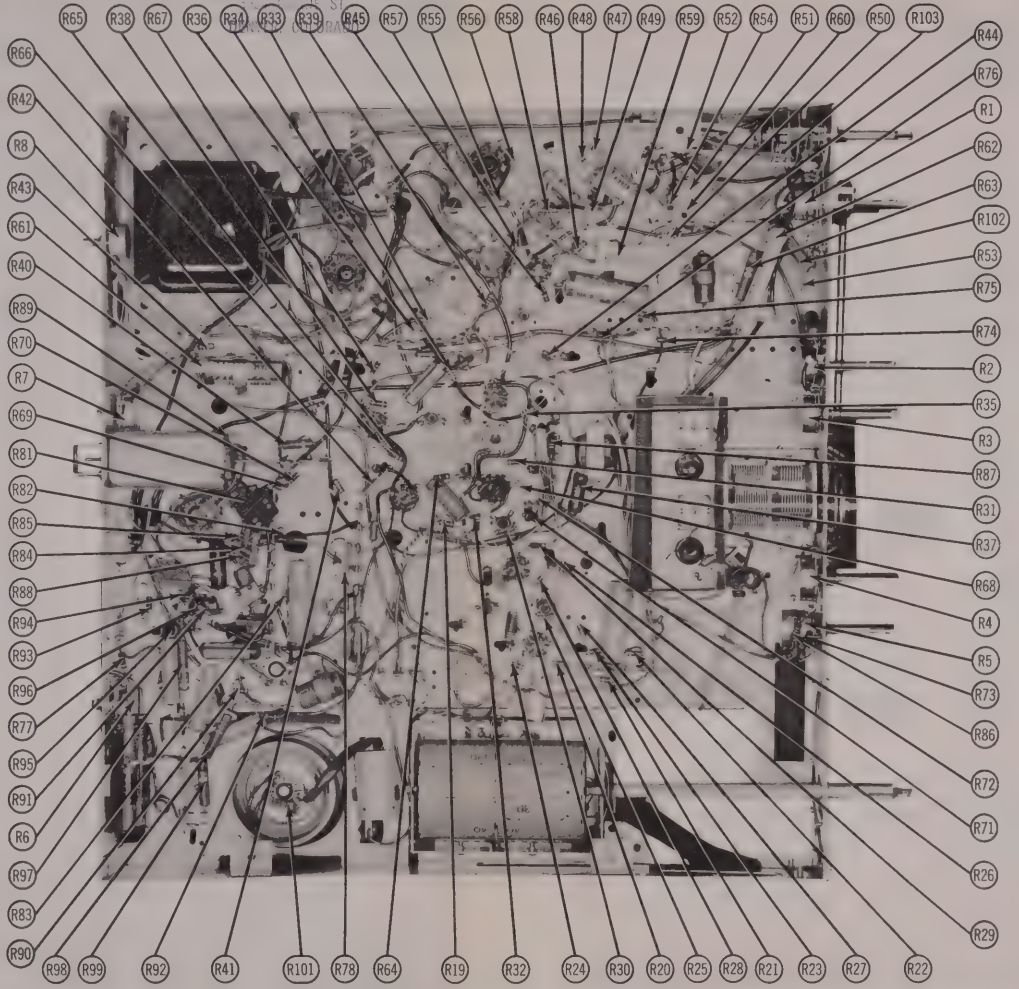
Centering is accomplished mechanically by means of a centering lever on the PM focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

1. Remove 6 push-on type control knobs from front panel. (Vert. & horiz. hold knob under door).
2. Remove 8 wood screws and 2 metal screws from rear cover. Remove rear cover.
3. Disconnect phono AC and audio leads from chassis.
4. Disconnect speaker leads from chassis.
5. Disconnect leads from radio antenna.
6. Disconnect TV built-in antenna.
7. Remove 4 chassis bolts. Remove chassis.

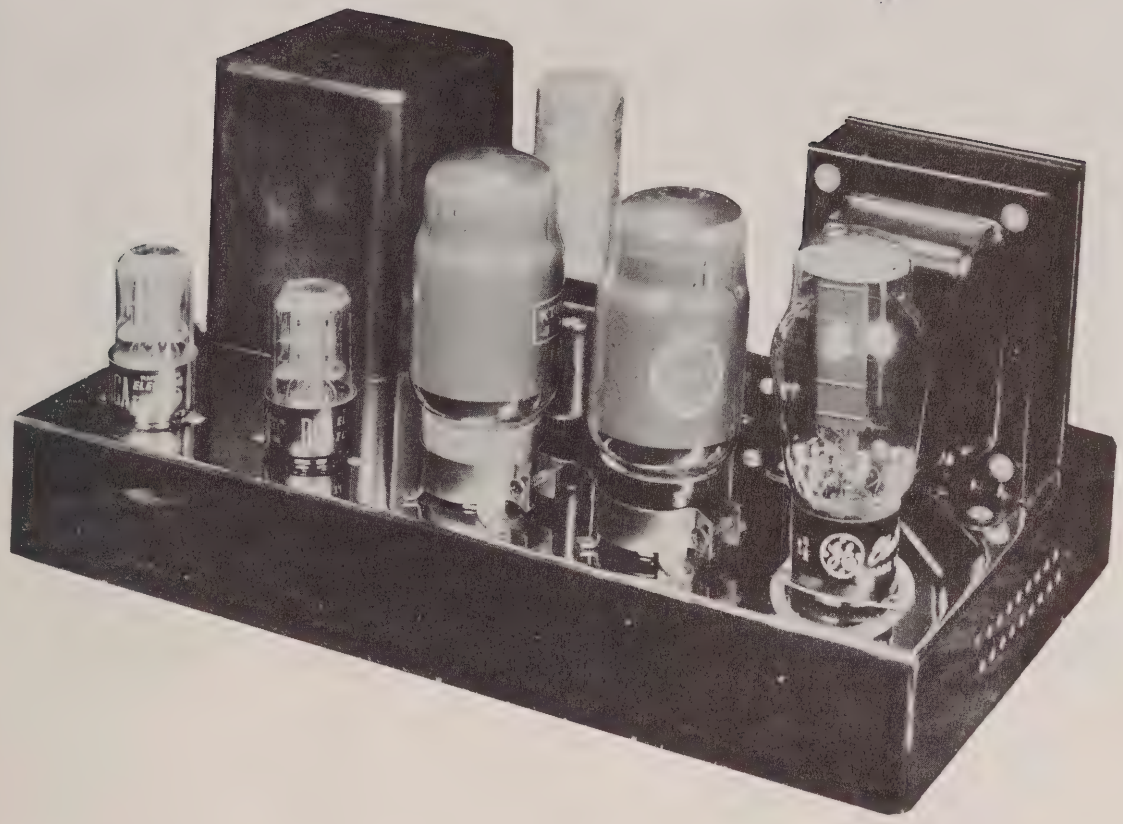
SPEAKER REMOVAL

1. Remove 7 wood screws from lower rear cover. Remove cover.
2. Remove 2 lead clamps.
3. Remove 7 wood screws from metal cover in phono changer compartment. Remove cover.
4. Remove 4 speaker nuts. Remove speaker.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

PROPERTY OF
L F T[illegible]SHIP



CRAFTSMEN
MODEL C-550

TRADE NAME	Craftsmen Model C-550
MANUFACTURER	The Radio Craftsmen, Inc., 4401 N. Ravenswood Ave., Chicago 40, Ill.
TYPE SET	AC Operated 30 Watt Audio Amplifier
TUBES (Five)	Types 6SN7GTA AF Amp. -Phase Inverter, 6SN7GTA Driver, (2) KT66 Output, 5U4G Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .6 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

CRAFTSMEN MODEL C-550

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: CRAFTSMEN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	AF Amplifier-Phase Inverter	6SN7GTA	6SN7GTA	8BD	
V2	Driver	6SN7GTA	6SN7GTA	8BD	
V3	Output	KT66	KT66	7S	
V4	Output	KT66	KT66	7S	
V5	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CRAFTSMEN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	■40	500				C041		FP495		
B	▲40	500				BR850				
C	▲8	500								
D	8	500								
C2	50	100		PRS150/50		BR5015		TC49	TVA-1414	
C3	470	500		1468-471		5W5T47				
C4	.22	400		P488-22		CUB4P22		PT4022	4TM-P22	
C5	.22	400		P488-22		CUB4P22		PT4022	4TM-P22	
C6	.1	400		P488-1	DF-104	CUB4P1		PT401	4TM-P1	
C7	.1	400		P488-1	DF-104	CUB4P1		PT401	4TM-P1	
C8	120	500		1468-121		5W5T12		MCB236		
C9	.01	400		P488-01	DF-103	CUB4S1	GP2-333-103	PT411	4TM-S1	

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CRAFTSMEN PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	100Ω	2	23S802	WK-100	A43-100	VK-121	R100L	Bias - wire wound
B	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Not Req.	Attach to R1A
R2A	100Ω	2		WK-100	A43-100	VK-121	R100L	Balance - wire wound
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	Attach to R2A

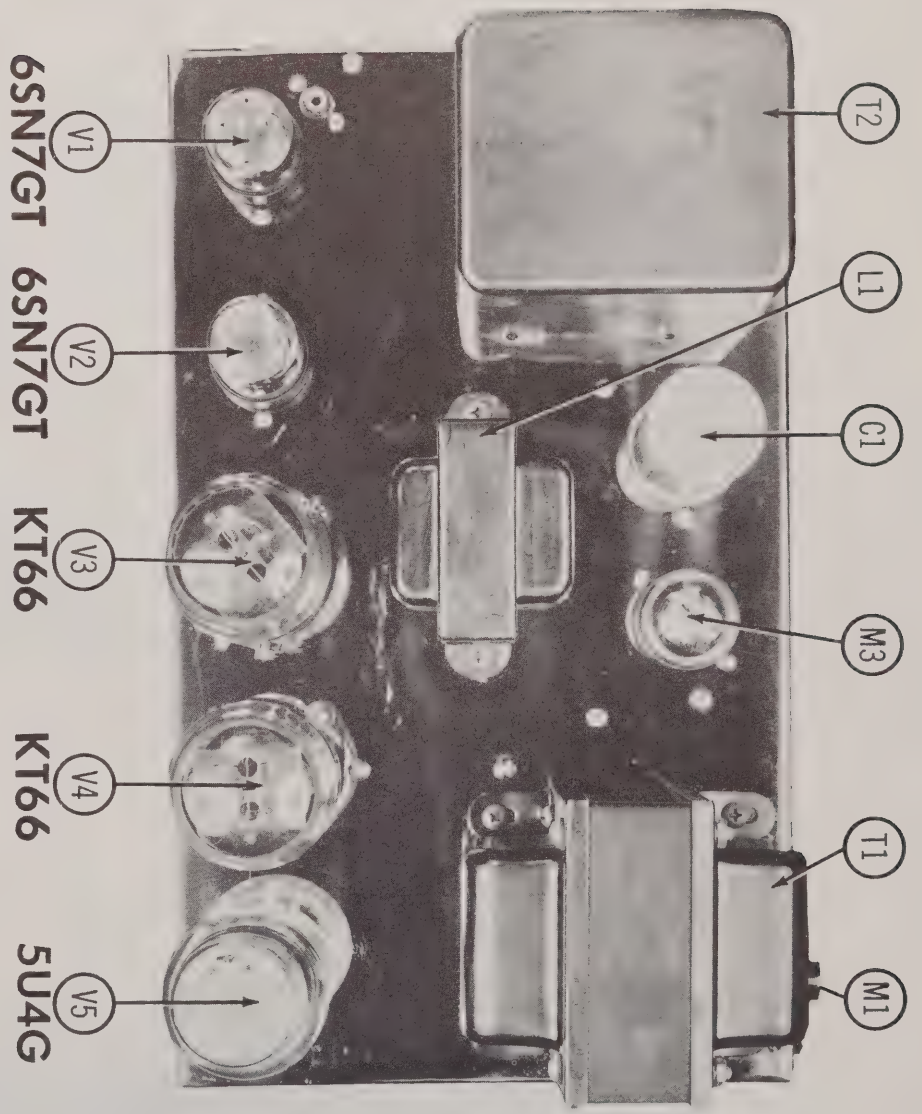
RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CRAFTSMEN PART No.	IRC PART No.	NOTES
R3	470KΩ	½		BTS-470K	
R4	470Ω 5%	½		BTS-470 5%	
R5	47KΩ	2		BTB-47K	
R6	3000Ω 5%	½		BTS-3000 5%	
R7	22KΩ	1			Note 1
R8	22KΩ	1			Note 1
R9	1Meg	½		BTS-1Meg	
R10	390Ω	½		BTS-390	
R11	100KΩ	2			Note 2
R12	100KΩ	2			Note 2
R13	1Meg	½		BTS-1Meg	
R14	100KΩ	2			Note 3
R15	100KΩ	2			Note 3

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: CRAFTSMEN PART No.	IRC PART No.	NOTES
R16	100Ω	1			
R17	100Ω	1			
R18	100KΩ	½			Note 4
R19	1000Ω	½		BTS-1000	
R20	400Ω	5		1 3/4A-100	
R21	100KΩ	½			Note 4
R22	1000Ω	½		BTS-1000	
R23	400Ω	5		1 3/4A-400	
R24	180Ω	½		BTS-180	
R25	10KΩ 5%	½		BTS-10K 5%	
R26	33KΩ	2		BTB-33K	
R27	22KΩ	1		BTA-22K	

Note 1. Items R7 and R8 must be matched within 1 % when replaced.
Note-2. Items R11 and R12 must be matched within 1 % when replaced.
Note 3. Items R14 and R15 must be matched within 1% when replaced.
Note 4. Items R18 and R21 must be matched within 1% when replaced.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	CRAFTSMEN PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC ②. 6A	820VCT .140ADC	5VAC ②3. 35A	6. 3VCT 3. 64A			P-3155		P9402 ①	24R07U

① Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	CRAFTSMEN PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T2	6. 1KΩ CT tap ② 128ΩCT RES	16Ω tap ③ 8Ω		A-8072 ①			H4103 ①		① Drill new mounting holes.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	CRAFTSMEN PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L1	.140ADC	138Ω	5. 8 Hy.		C-1710 ①		C-12X	C5027 ①	20C49 ①

① Drill one new mounting hole.

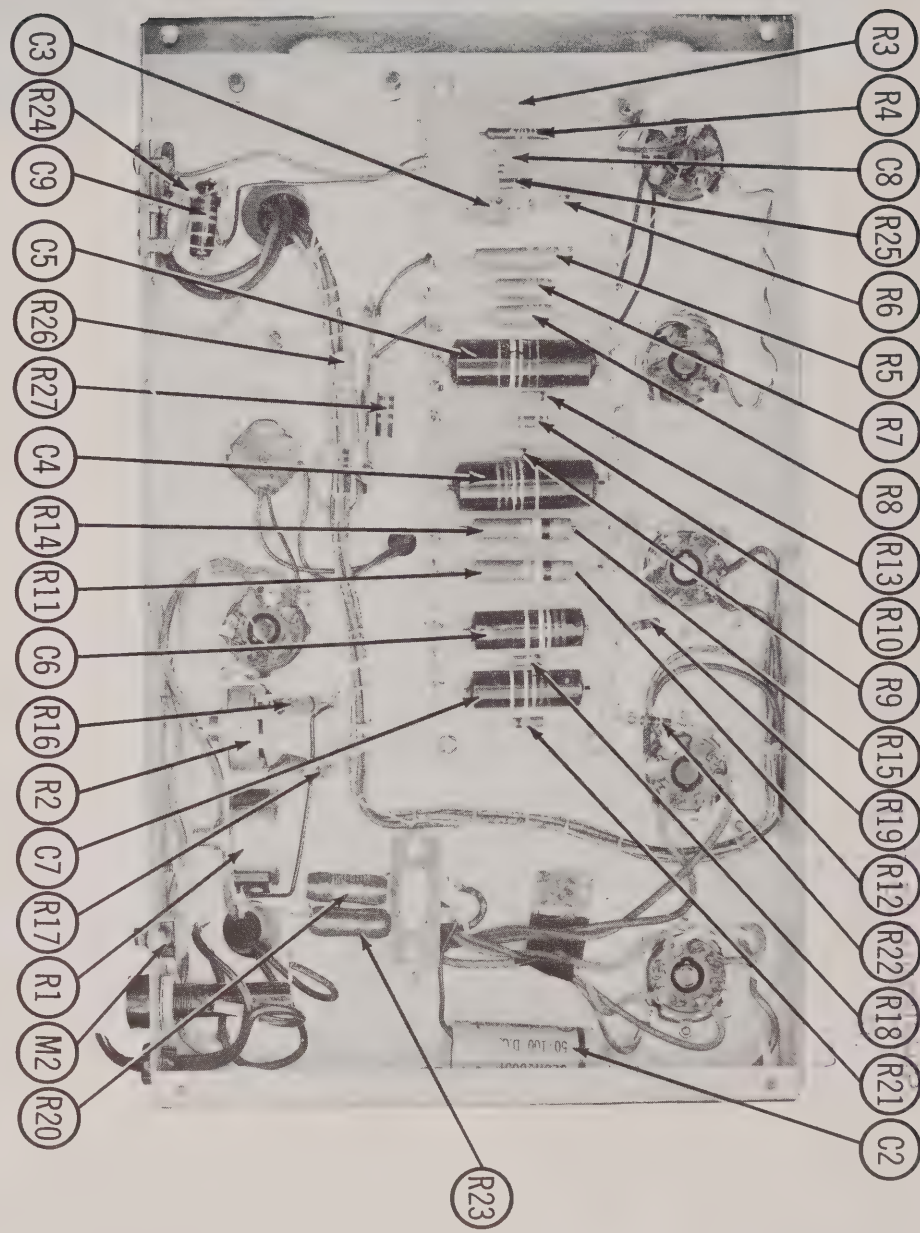
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			CRAFTSMEN PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG S/B	1-1/2A 125V			31301. 5 (3AG S/B - 1-1/2A)	341001	MDL 1-1/2	HKP

MISCELLANEOUS

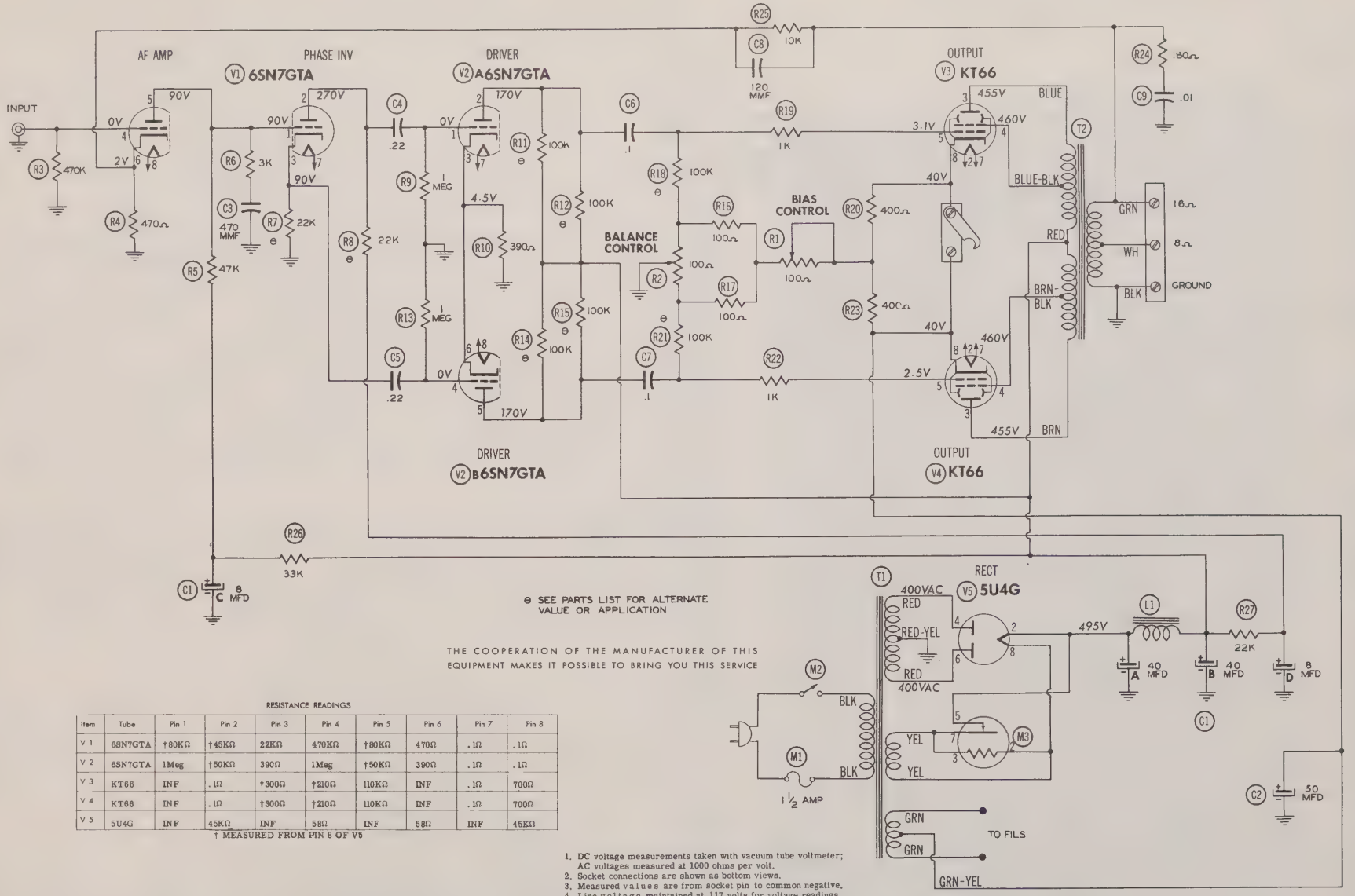
ITEM No.	PART NAME	CRAFTSMEN PART No.	NOTES
M2	Switch		On-off
M3	Relay		Thermo time delay

CHASSIS—BOTTOM VIEW



PROPERTY OF

CRAFTSMEN MODEL C-550



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SN7GTA	†80KΩ	†45KΩ	22KΩ	470KΩ	†80KΩ	470Ω	.1Ω	.1Ω
V 2	6SN7GTA	1Meg	†50KΩ	390Ω	1Meg	†50KΩ	390Ω	.1Ω	.1Ω
V 3	KT66	INF	.1Ω	†300Ω	†210Ω	110KΩ	INF	.1Ω	700Ω
V 4	KT66	INF	.1Ω	†300Ω	†210Ω	110KΩ	INF	.1Ω	700Ω
V 5	5U4G	INF	45KΩ	INF	58Ω	INF	58Ω	INF	45KΩ

† MEASURED FROM PIN 8 OF V5

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

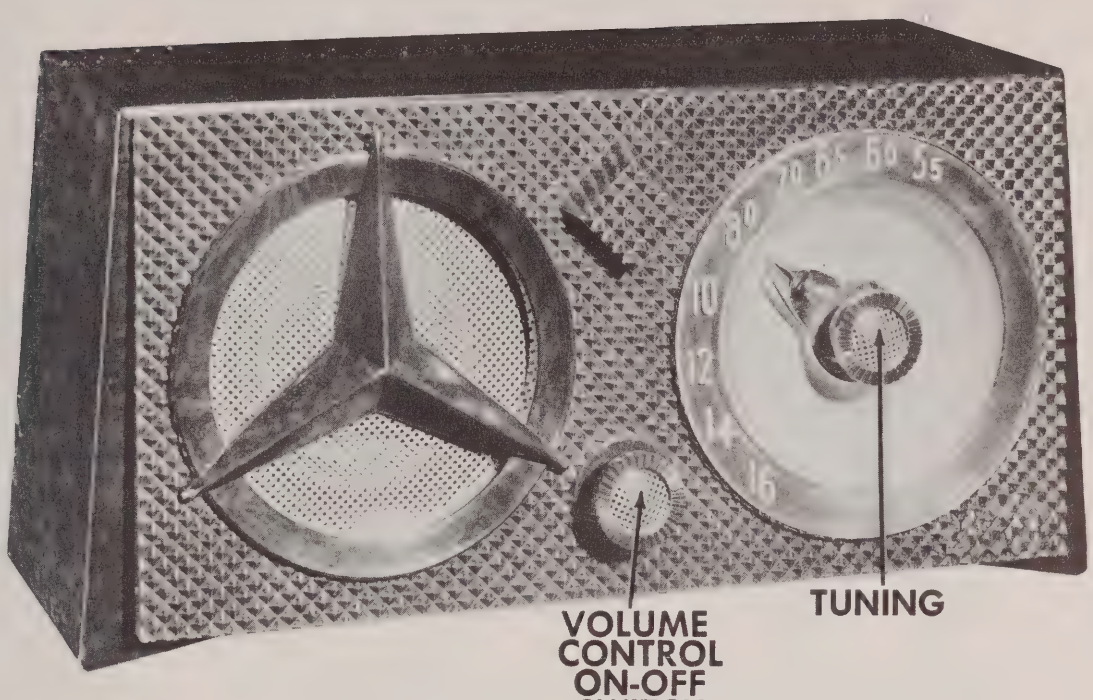
A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1955

271-2

PROPERTY OF
[illegible]SHIP

FIRESTONE
MODELS 4-A-136, 4-A-137



FIRESTONE
MODELS 4-A-136, 4-A-137

TRADE NAME	Firestone Models 4-A-136, 4-A-137
SUPPLIER	Firestone Tire & Rubber Co., 1200 Firestone Pkwy., Akron, Ohio
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-DC — RATING . 25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2	"	"	1600KC	"	"	A5	"
3		Loop	400 1400KC	Tune to 1400KC signal.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

FIRESTONE MODEL 4-A-136

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		FIRESTONE PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp.	12BA6	12BA6	7BK	
V3	Det-AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	FIRESTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	■50	150		AFH3-70		C056			TVL-3424	
B	▲30	150								
C	20	25								
C2	.05	200		P288-05	DF-503	CUB2S5		PT415	2TM-S5	
C3	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C4	100	500		1468-101	D6-101	5W5T1	GP1K-101	MC235	1FM-31	
C5	10000			BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C6A	5000									
B	250			♦PA-112-1	♦PC-70	♦112TM1	♦1406-01		♦T-3	
C										
C7	.02	200		P288-02	DF-203	CUB2S2	821-02	PT412	2TM-S2	
C8	20000			BPD-02	DF-203	K085	821-02	PT412	5HK-S2	
C9	.05	400		P488-05	DF-503	CUB4S5		PT415	4TM-S5	

♦ Items C6A, C6B, C6C, R7A, R7B are combined in one unit.
When replacing items seperately, C6B and C6C should total 250MMF.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	FIRESTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1	500KΩ	½	C42134					Volume & Switch

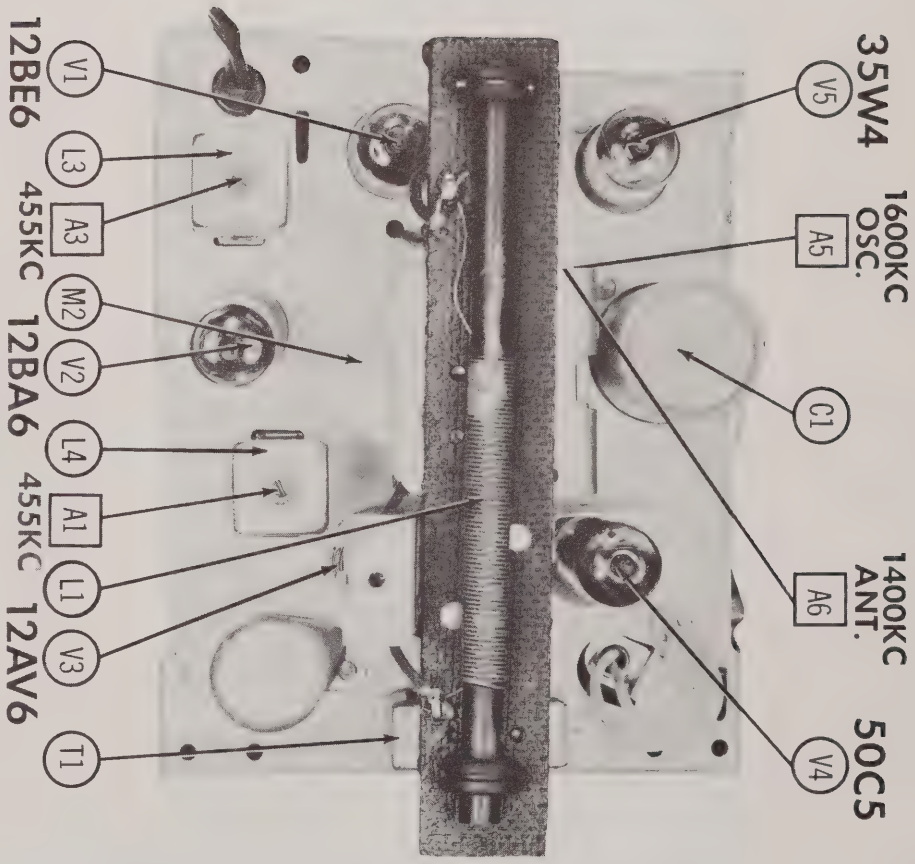
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	FIRESTONE PART No.	IRC PART No.	
R2	22KΩ	½		BTS-22K	
R3	68KΩ	½		BTS-68K	
R4	68Ω	½		BTS-68	
R5	2.2Meg	½		BTS-2.2Meg	
R6	10Meg	½		BTS-10Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	FIRESTONE PART No.	IRC PART No.	
R7A	500KΩ	½	♦	BTS-500K	
B	500KΩ	½		BTS-500K	
R8	120Ω	½		BTS-120	
R9	1200Ω	1		BTA-1200	
R10	150Ω	½		BTS-150	
R11	330KΩ	½		BTS-330K	

♦ Items R7A, R7B, C6A, C6B and C6C are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	FIRESTONE PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T1	2.3KΩ	3.3Ω		A-3332	A-3025	S-12X	Z1101	24S50 ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	FIRESTONE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.3Ω	C22875	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

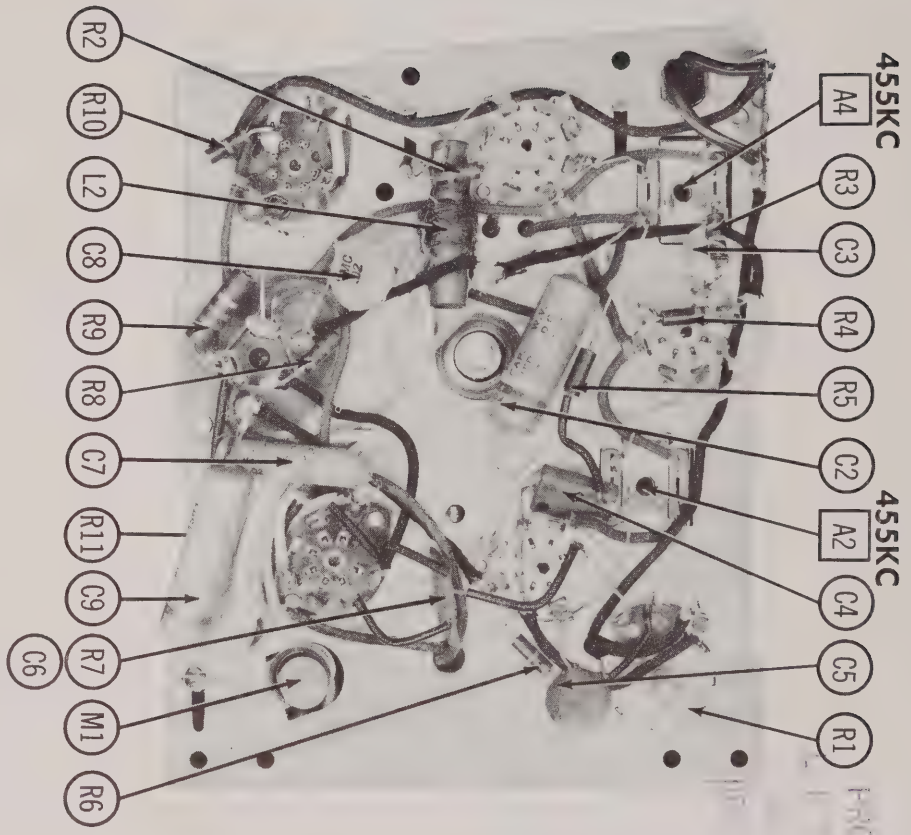
ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	FIRESTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.3Ω						
L2	Osc. Coil	1.1Ω	7.5Ω		14-1073		69-Osc.*	Tertiary winding.
L3	Input IF	13Ω	13Ω		16-6758	BC-352	12-C1	
L4	Input IF	13Ω.	13Ω		16-6758	BC-353	12-C2	

* Drill mounting hole.

MISCELLANEOUS

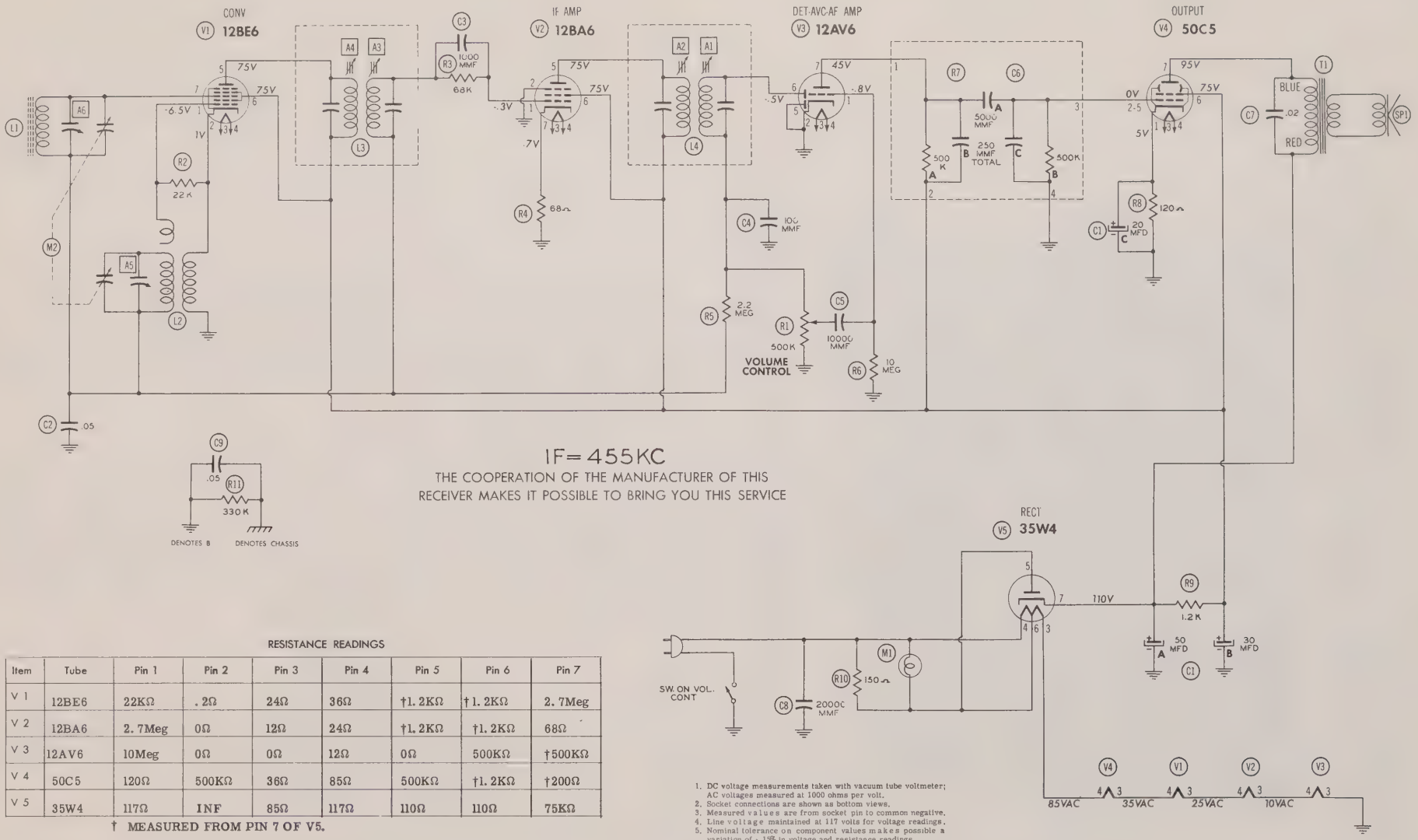
ITEM No.	PART NAME	FIRESTONE PART No.	NOTES
M1	Dial Light		Bayonet, #47
M2	Tuning Cap.	C42107	21-310MMF; 21-165MMF.

CHASSIS—BOTTOM VIEW



PROPERTY OF

FIRESTONE MODEL 4-A-136



IF = 455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.2Ω	24Ω	36Ω	†1.2KΩ	†1.2KΩ	2.7Meg
V 2	12BA6	2.7Meg	0Ω	12Ω	24Ω	†1.2KΩ	†1.2KΩ	68Ω
V 3	12AV6	10Meg	0Ω	0Ω	12Ω	0Ω	500KΩ	†500KΩ
V 4	50C5	120Ω	500KΩ	36Ω	85Ω	500KΩ	†1.2KΩ	†200Ω
V 5	35W4	117Ω	INF	85Ω	117Ω	110Ω	110Ω	75KΩ

† MEASURED FROM PIN 7 OF V5.

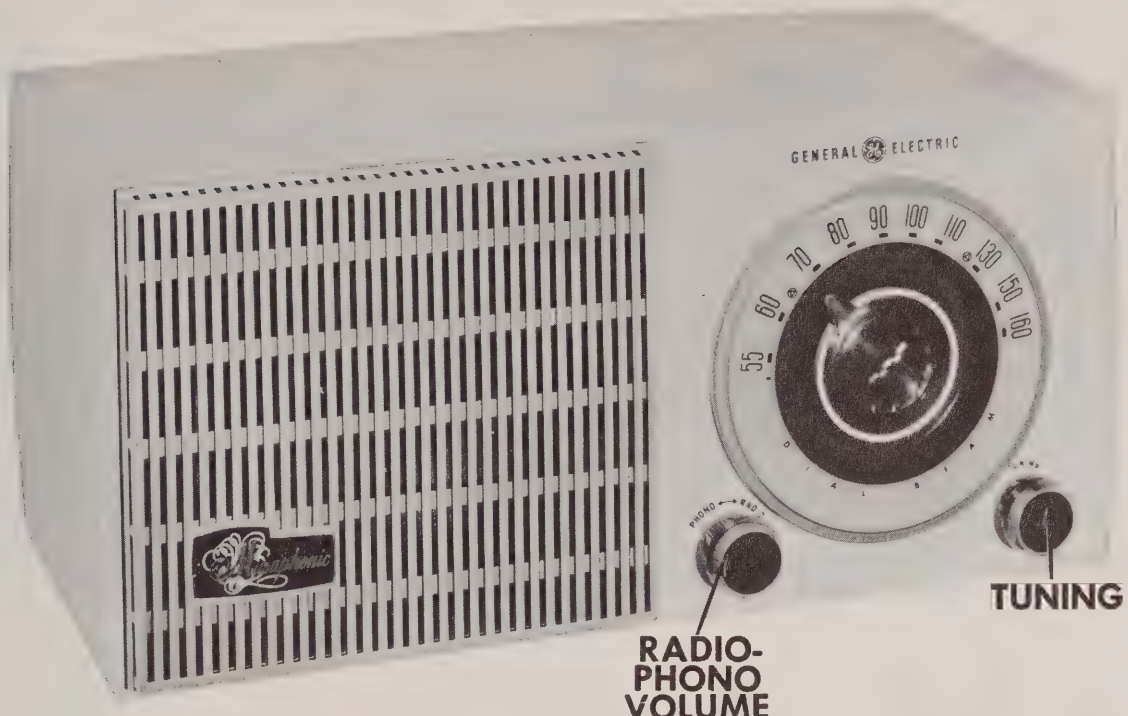
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W Sams & Co., Inc. 1955

RETMA MEMBER

PROPERTY OF

GENERAL ELECTRIC
MODELS 446, 447, 448



GENERAL ELECTRIC
MODELS 446, 447, 448

TRADE NAME	General Electric Models 446, 447, 448
MANUFACTURER	General Electric Co., Electronics Dept., Electronics Park, Syracuse, N. Y.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver With Phono Provisions
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC RATING .24 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	Direct	Loop	1620KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	"	1500KC	Tune to 1500KC signal	"	A6	Adjust for maximum output while rocking tuning gang.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

GENERAL ELECTRIC
MODEL 446

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: General Electric PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: General Electric PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	100	150	RCE-177	PRS150/80-40-20		BBRD5515		TCT-3117	TVA-3455	
B	50	150				BR5015				
C2	.05	400	UCC-045	P488-05	DF-503	CUB4S5		PT415	4TM-S5	
C3	47		RCW-3075							
C4	.01	400	UCC-008	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C5	220		RCW-3137	SI220	D6-221	TP39	GP2K-221	UC-5322	5GA-T22	
C6	.02	400	RCC-129	P488-02	DF-203	CUB4S2		PT412	4TM-S2	
C7	220		RCW-3137	SI220	D6-221	TP39	GP2K-221	UC-5322	5GA-T22	
C8	.02	400	RCC-129	P488-02		CUB4S2		PT412	4TM-S2	
C9A	500		RCW-3104	PA-315	D6-501	TP47	GP2K-501	UC-535	5GA-T5	
B	6800				D6-682	TP66	GP2-333-682	UC-5268	5HK-D68	
C10	.05	200	RCC-126	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C11	.047	600	RCN-053	689ZX-047	DF-503	CUB6S47		PT6147	6TM-S47	
C12	.05	400	UCC-047	P488-05	DF-503	CUB4S5		PT415	4TM-S47	

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: General Electric PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	4Meg	½	RRC-279					Radio, Phono Volume & Switch-tapped @ 2Meg

RESISTORS

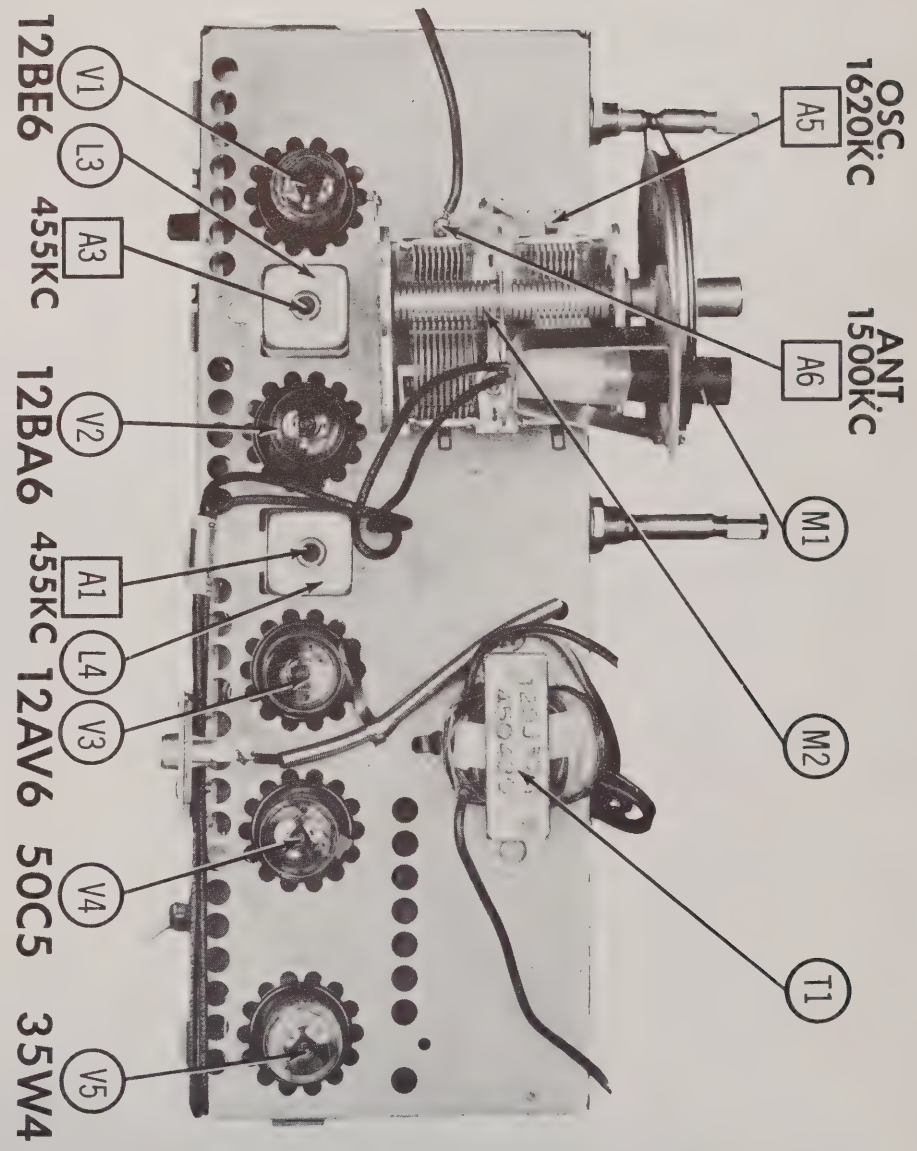
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: General Electric PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	22KΩ	½	URD-081	BTS-22K	
R3	100Ω	½	URD-025	BTS-100	
R4	100KΩ	½	URD-097	BTS-100K	
R5	68Ω	½	URD-021	BTS-68	
R6	330KΩ	½	URD-109	BTS-330K	
R7	2.2Meg	½	URD-129	BTS-2.2Meg	
R8	6.8Meg	½	URD-141	BTS-6.8Meg	
R9	470KΩ	½	URD-113	BTS-470K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: General Electric PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R10	470KΩ	½	URD-113	BTS-470K	
R11	150Ω	½	URD-029	BTS-150	
R12	1500Ω	2	URF-053	BTA-1500	
R13	4700Ω	½	URD-065	BTS-4700	
R14	820Ω	½	URD-047	BTS-820	
R15	15KΩ	½	URD-077	BTS-15K	
R16	18Ω	½	URD-007	BTS-18	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC. 1	IMPEDANCE: SEC. 2	REPLACEMENT DATA: General Electric PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T1	2.4KΩ	3.4Ω	DC Res 63Ω	RTO-157						

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	General Electric PART No.	JENSEN PART No.	QUAM PART No.	
SP1	5 1/4"	PM	3.4Ω	ROP-030	ST-803 Mod. P525-V	52A1	

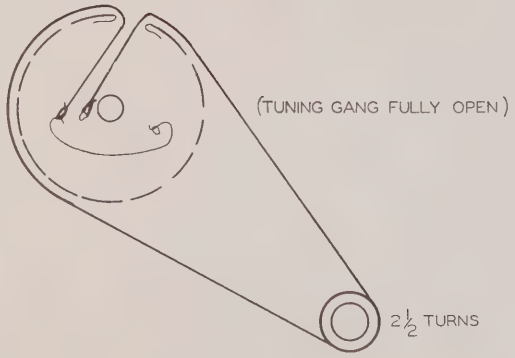
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	General Electric PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.5Ω		ALL-055				
L2	Osc. Coil	.5Ω	6.5Ω	RLC-122	14-1074		70-OSC	
L3	Input IF	13Ω	13Ω	RTL-143	16-6758 *	BC-352 *	12-C1 *	
L4	Output IF	14Ω	14Ω	RTL-143	16-6758 *	BC-353 *	12-C2 *	

* Terminal connections sufficient mounting support.

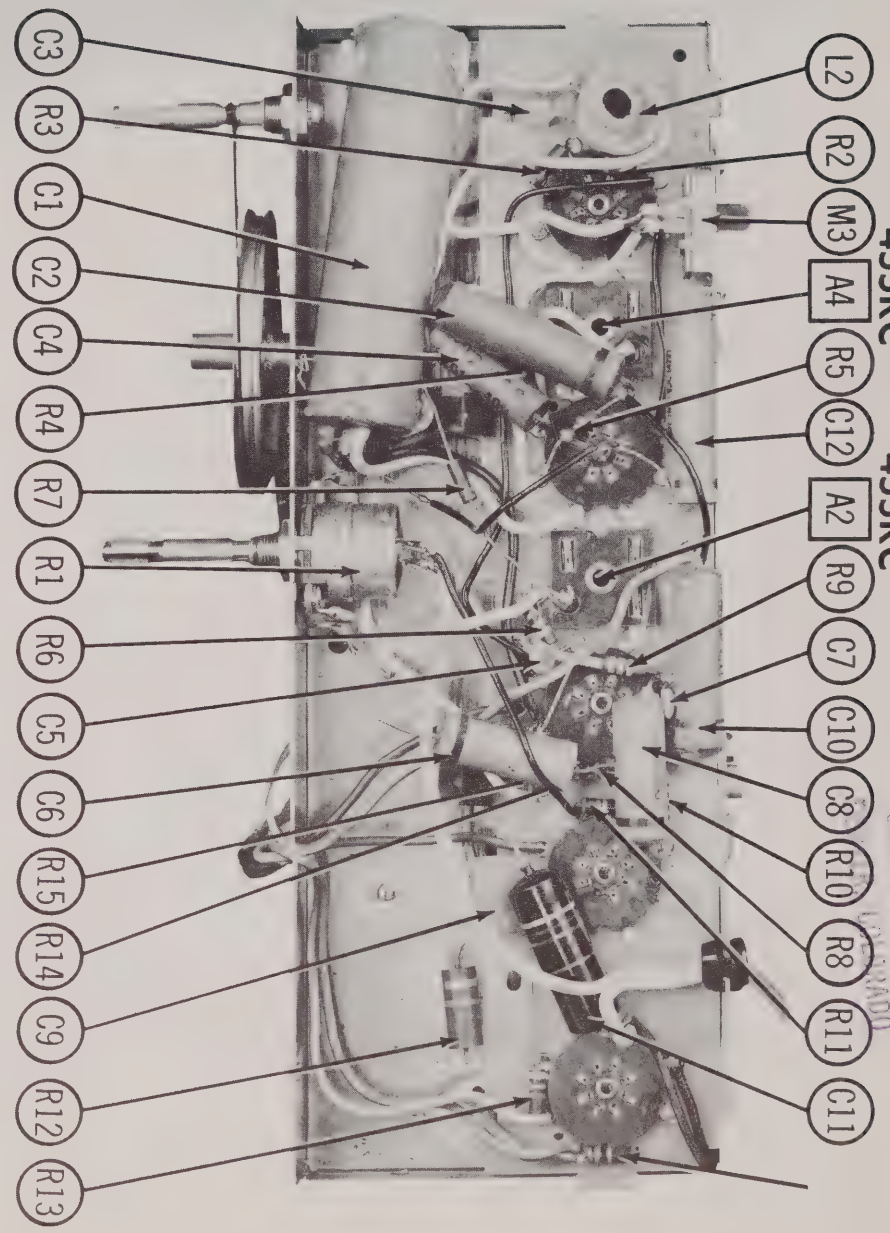
MISCELLANEOUS

ITEM No.	PART NAME	General Electric PART No.	NOTES
M1	Dial Light		#44, Bayonet
M2	Tuning Cap.	RCT-078	17-315MMF, 22-150MMF
M3	Switch	RSS-009	Radio-phono
	Cabinet	RAU-414	Model 446
	Cabinet	RAU-415	Model 447
	Cabinet	RAU-416	Model 448
	Back	RAB-242	Cabinet-Masonite
	Knob	RDK-425	Tuning & On-off-volume
	Dial Pointer	RDP-083	
	Dial Scale	RDW-077	Includes Dial Glass
	Medallion	RYN-027	

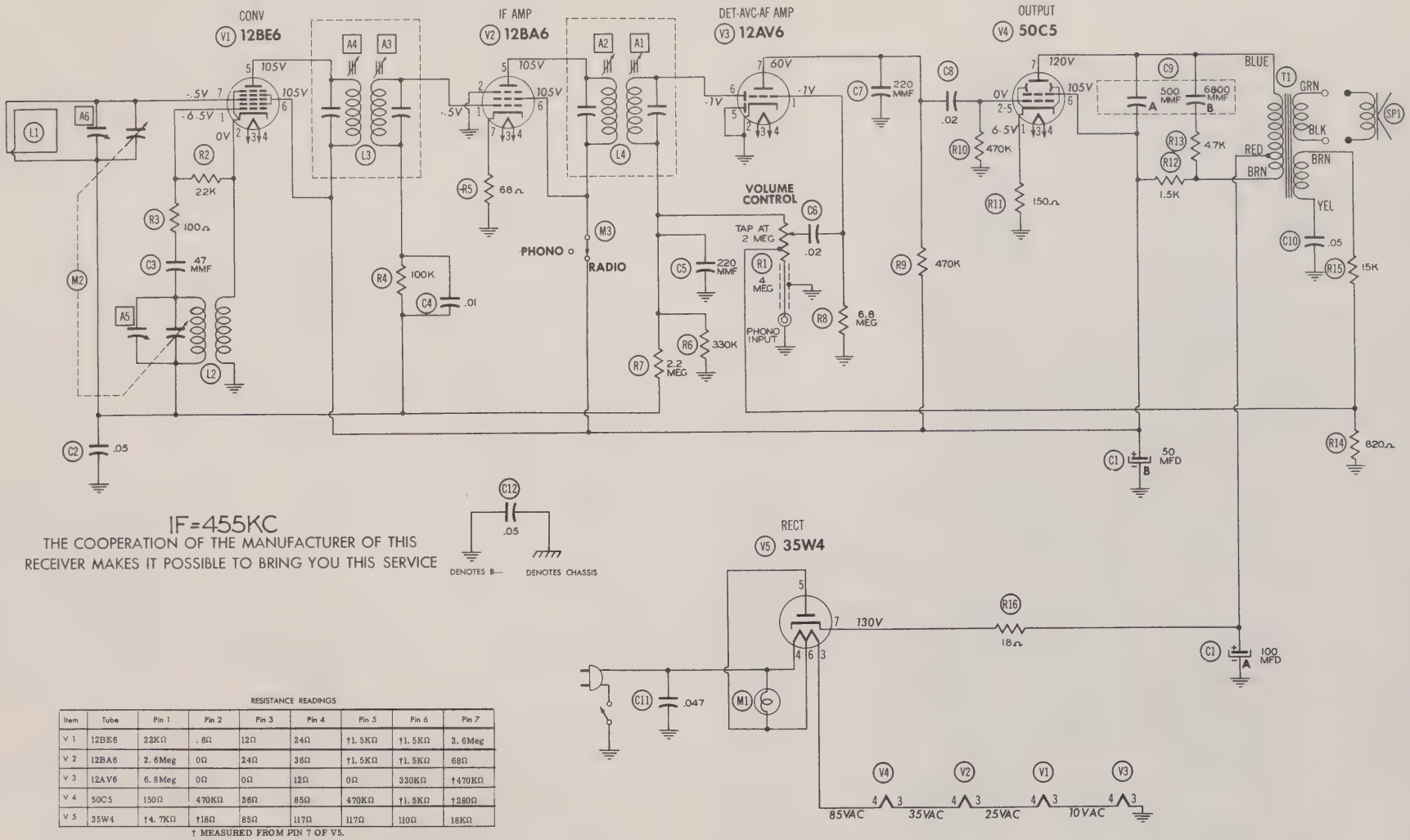


DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



GENERAL ELECTRIC MODEL 446



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

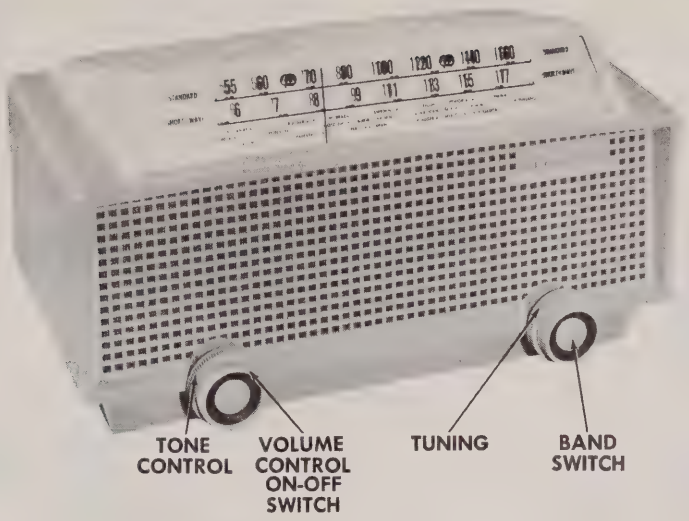
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	.6Ω	12Ω	24Ω	†1.5KΩ	†1.5KΩ	2.6Meg
V 2	12BA6	2.6Meg	0Ω	24Ω	36Ω	†1.5KΩ	†1.5KΩ	68Ω
V 3	12AV6	6.8Meg	0Ω	0Ω	12Ω	0Ω	330KΩ	†470KΩ
V 4	50C5	150Ω	470KΩ	36Ω	85Ω	470KΩ	†1.5KΩ	†280Ω
V 5	35W4	†4.7KΩ	†18Ω	85Ω	117Ω	117Ω	110Ω	18KΩ

† MEASURED FROM PIN 7 OF V5.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1955

PROPERTY OF



HALLICRAFTERS
MODELS 621, 622

TRADE NAME	Hallicrafters Models 621, 622 (Run 1)
MANUFACTURER	Hallicrafters Co., 4401 W. 5th. Ave., Chicago 24, Ill.
TYPE SET	AC-DC Operated 2 Band AM Superheterodyne Receiver
TUBES (Six)	Types 12BA6 RF Amp., 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp. 35C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-DC — RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC — SHORT WAVE 5.9MC - 18MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to B-.	455KC (400~Mod)	BC	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620KC	"	"	"	A5	"
3.	"	High side to pin 1 (grid) of 12BA6 (V1). Low side to B-.	1400KC	"	Tune to 1400KC signal	"	A6	"
4.		Loop (BC)	"	"	"	"	A7	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
5.	"	"	600KC	"	600KC	"	A8	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat step 5
6.	.01MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to B -.	18MC	SW	Tuning gang fully open	"	A9	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
7.	"	High side to pin 1 (grid) of 12BA6 (V1). Low side to B-.	14MC	"	Tune to 14MC signal	"	A10	"
8.		Loop (SW)	14MC	"	"	"	A11	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
9.		"	6.5MC	"	6.5MC	"	A12	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat step 9.

HALLICRAFTERS
MODELS 621, 622

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: Hallicrafters PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amplifier	12BA6	12BA6	7CH	
V2	Converter	12BE6	12BE6	7BK	
V3	IF Amplifier	12BA6	12BA6	7CH	
V4	Det. -AVC-AF Amp.	12AV6	12AV6	7BT	
V5	Output	35C5	35C5	7CV	
V6	Rectifier	35W4	35W4	6BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	Hallicrafters PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	■50	150	45C244	AFH4-35		D029		FP410	TVL-4425	
B	▲50	150								
C	▬50	150								
C2	6.8		47CA20A068D	SI6.8NP0	TCZ-6.8	TZ08	NP0A-6R8	ZT-5568	5TCCB-V68	
C3	220		47CA20A221K	SI220	D6-221	TP39	GP2K-221	UC-5322	5GA-T22	
C4	.047	200	46BS473L2	P288-047	DF-503	CUB2S47		PT4147	2TM-S47	
C5	20000		47A242	BPD-02	DF-203	K085	817-02		5HK-S2	Note 1
C6	220		47CA20A221K	SI220	D6-221	TP39	GP2K-221	UC-5322	5GA-T22	
C7	51		47CA20A510J							
C8	2700	500	47X35C272G							
C9	510	500	47X20C511G							
C10	.047	200	46BS473L2	P288-047	DF-503	CUB2S47		PT4147	2TM-S47	
C11	20000		47A242	BPD-02	DF-203	K085	817-02		5HK-S2	
C12	.1	200	46BS104L2	P288-1	DF-104	CUB2P1		PT401	2TM-P1	
C13	20000		47A242	BPD-02	DF-203	K085	817-02		5HK-S2	
C14A	100		†49A016	†PA-97-1	†PC-50	†113TM1	†1403-01	UC-531	†D-1	
B	100							UC-531		
C15	.047	200	46BS473L2	P288-047	DF-503	CUB2S47		PT4147	2TM-S47	
C16	10000		47A224	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C17	10000		47A224	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C18	5000		47A442	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C19A	10000									
B	250		♦49A017	♦PA-112-3	♦PC-80	♦113TM1	♦1404-01		♦T-1	
C										
C20	.0047	400	46BS472L4	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	
C21	.047	400	46BS473L4	P488-047	DF-503	CUB4S47		PT4147	4TM-S47	
C22	.1	200	46BS104L2	P288-1	DF-104	CUB2P1		PT401	2TM-P1	

Note 1. Some versions use 5000MMF in this application (part #47A442).
† Items C14A, C14B, R15 are combined in one unit.
♦ Items C19A, C19B, C19C, R19A, R19B are combined in one unit.
When replacing items separately, C19B and C19C should total 250MMF.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Hallicrafters PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3Meg	½	25B1066	*QJ-620		F1-77	UF255L	Tone - Panel
B	500KΩ	½				R2-46	UR55T-254	Volume-tapped @ 300KΩ-Rear
C	Switch					KB-1	US-26	Attach to R1B

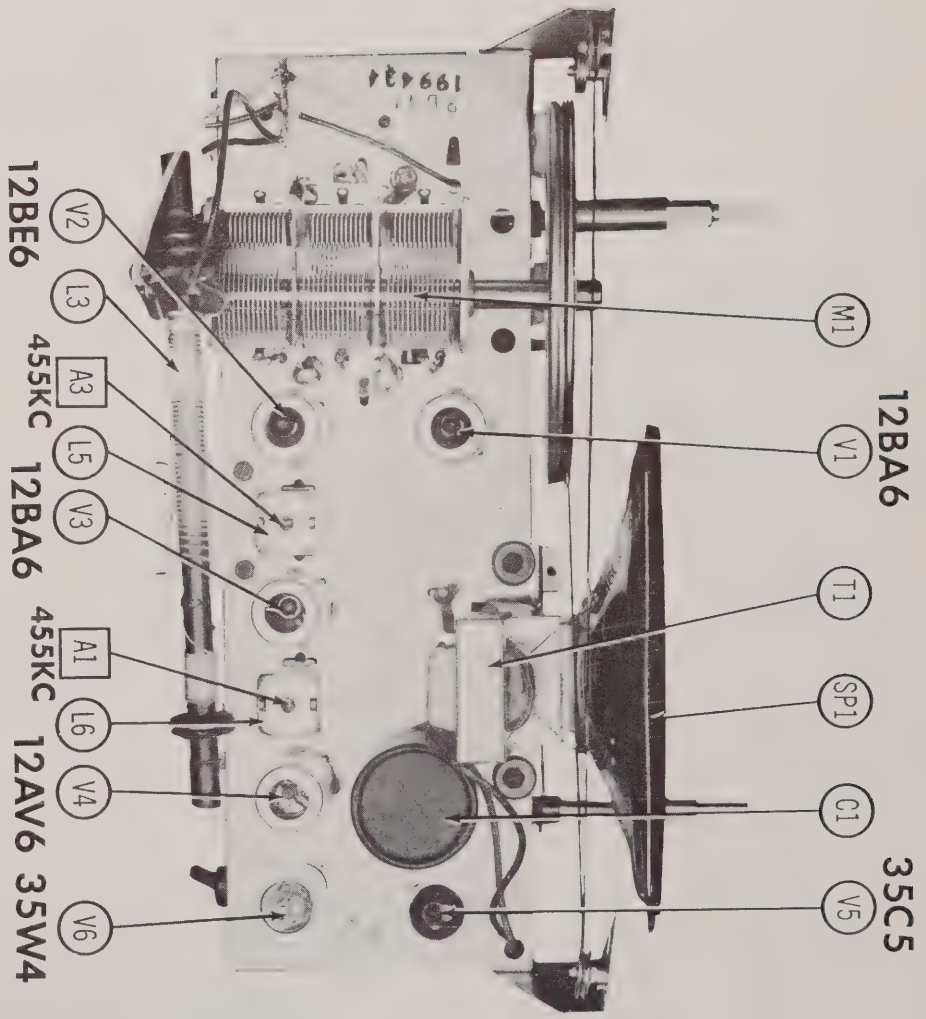
* CONCENTRIKIT EQUIVALENT: K-2 KIT, BASE ELEMENTS & SHAFTS: B11-140 & P1-206 (Panel)
B19-133X & R14-229 (Rear)
76-1 SWITCH

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	Hallicrafters PART No.	IRC PART No.	NOTES
R2	33KΩ	½	23X20X333K	BTS-33K	
R3	1Meg	½	23X20X105K	BTS-1Meg	
R4	33Ω	½	23X20X330K	BTS-33Ω	
R5	1200Ω	½	23X20X122K	BTS-1200	
R6	100Ω	½	23X20X101K	BTS-100	
R7	5600Ω	½	23X20X562K	BTS-5600	
R8	33KΩ	½	23X20X333K	BTS-33K	
R9	22KΩ	½	23X20X223K	BTS-22K	
R10	1Meg	½	23X20X105K	BTS-1Meg	
R11	47Ω	½	23X20X470K	BTS-47	
R12	1200Ω	½	23X20X122K	BTS-1200	
R13	560KΩ	½	23X20X564K	BTS-560K	
R14	1200Ω	½	23X20X122K	BTS-1200	
R15	47KΩ	½	♦49A016	BTS-47K	
R16	2.7Meg	½	23X20X275K	BTS-2.7Meg	
R17	33KΩ	½	23X20X333K	BTS-33K	
R18	2.7Meg	½	23X20X275K	BTS-2.7Meg	
R19A	500KΩ	½	†49A017	BTS-470K	
B	500KΩ	½		BTS-470K	
R20	150Ω	½	23X20X151K	BTS-150	
R21	120Ω	2	23X40X121K		
R22	390Ω	1	23X30K391K	BTA-390	
R23	150KΩ	½	23X20X154K	BTS-150K	

♦ Items R15, C14A, C14B are combined in one unit.
† Items R19A, R19B, C19A, C19B, C19C are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Hallicrafters PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T1	2.4KΩ	3.2Ω	Part of Spkr.	A-3876 ①	A-2928 ①	S-1X ①	Z1001 ①	24S50 ①	① Bend mounting tabs down, file out slots, mount on original mounting bracket.

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA Hallicrafters PART No.	VIKING PART No.	QUAM PART No.	NOTES
SP1	4 x 6"	PM	3.2Ω	85C148	46J6	46A1	

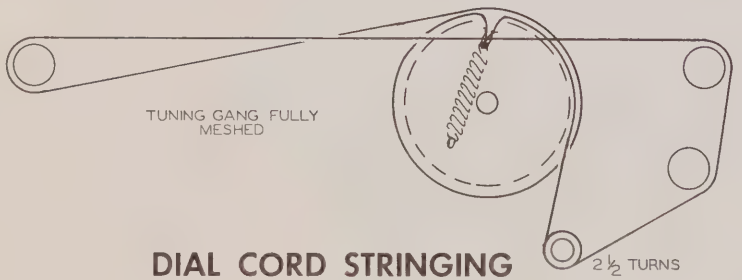
COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA Hallicrafters PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	SW Ant. Coil	.1Ω		51B1787			C5495A *	
L2A	SW RF Coil	.1Ω		51B1786			C5495RF*	
B	SW Osc. Coil	0Ω	.2Ω	51B1786			C5495C	
L3	BC Ant. Coil	.5Ω		57B205				
L4A	BC RF Coil	1.2Ω	5.8Ω	51B1785	14-1072		A-5495A	
B	BC Osc. Coil	.5Ω	5Ω	51B1785	14-1028		71-OSC	
L5	Input IF	18Ω	18Ω	50C248	16-6748	BC-352	12-C1	
L6	Output IF	18Ω	18Ω	50C248	16-6758	BC-353	12-C2	
L7	Chassis Isolation Coil	.1Ω						22 Turns wire wound on .005MMF Capacitor

* Use secondary winding only.

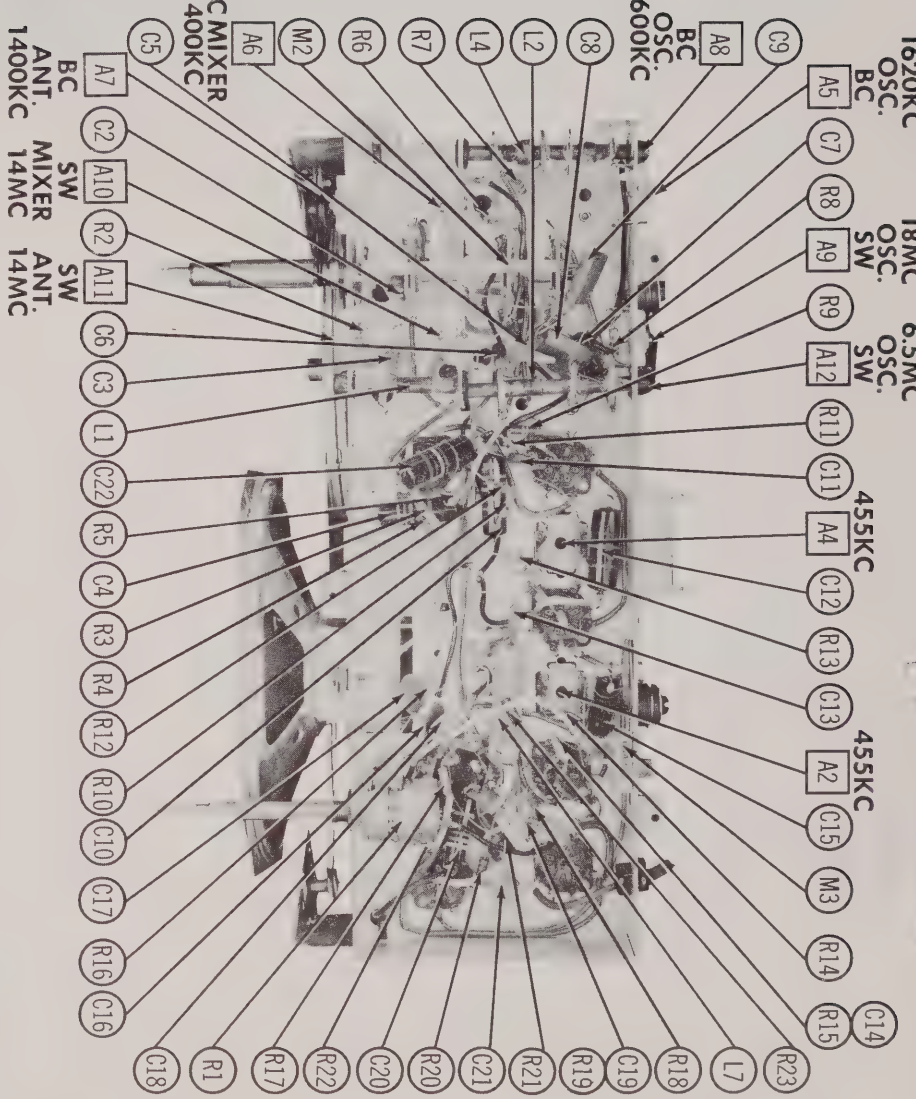
MISCELLANEOUS

ITEM No.	PART NAME	Hallicrafters PART No.	NOTES
M1	Tuning Cap.	48C308	10-400MMF, 10-400MMF, 10-400MMF
M2	Switch	60B592	Band
M3	Switch	60A381	Radio-Phono
A5	Trimmer Cap.	44B443	BC Osc. (4-40MMF)
A9	Trimmer Cap.	44B443	SW Osc. (4-40MMF)
A6	Trimmer Cap.	44B443	BC RF (4-40MMF)
A10	Trimmer Cap.	44B443	SW RF (4-40MMF)
A7	Trimmer Cap.	44B443	BC Ant. (4-40MMF)
A11	Trimmer Cap.	44B446	SW Ant. (2-25MMF)
	Cabinet	116F025	Model 621
	Cabinet	116F045	Model 622
	Knob	15C662	Bandswitch (Model 621)
	Knob	15A703	Bandswitch (Model 622)
	Knob	15A664	On-off-volume (Model 621)
	Knob	15A704	On-off-volume (Model 622)
	Knob	15A687	Tone (Model 621)
	Knob	15A705	Tone (Model 622)
	Knob	15A688	Tuning (Model 621)
	Knob	15A700	Tuning (Model 622)
	Dial Scale	83C471	
	Dial Backplate	63C1020	
	Dial Pointer	82B250	

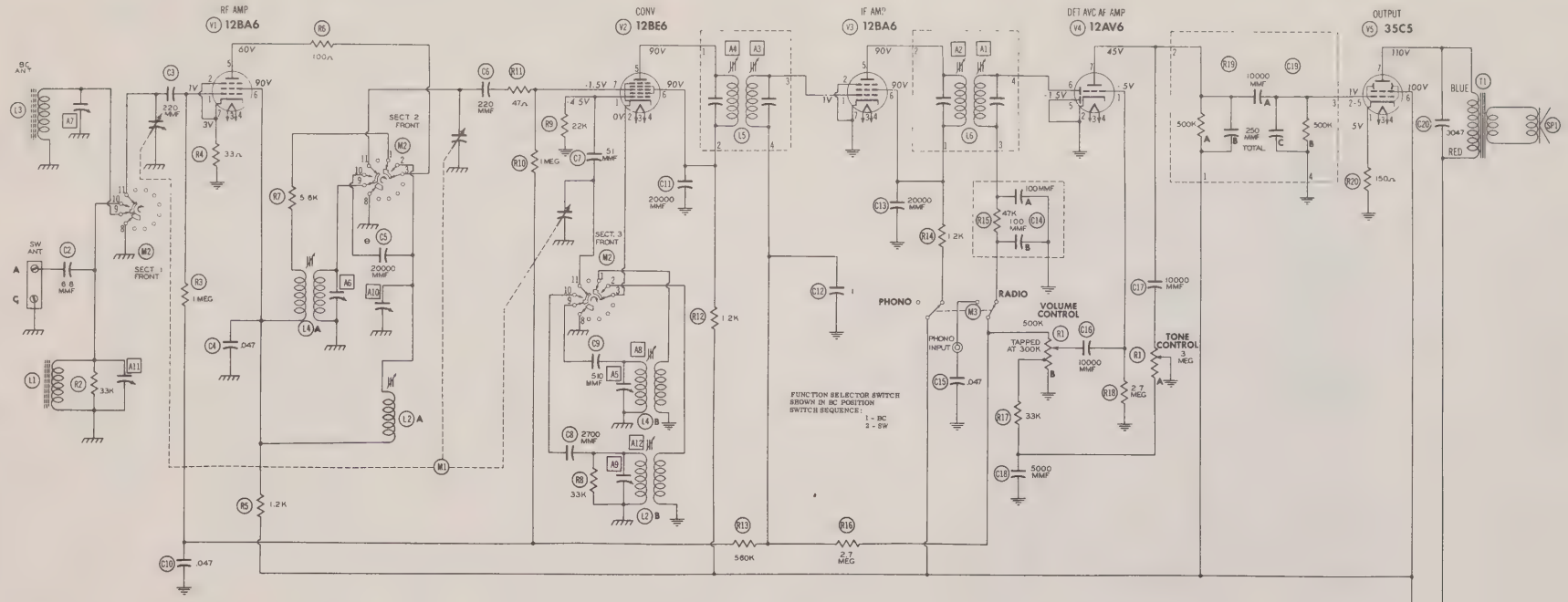


DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW

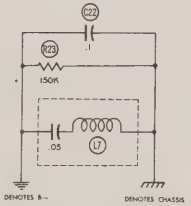


HALLICRAFTERS MODEL 621 (Run 1)

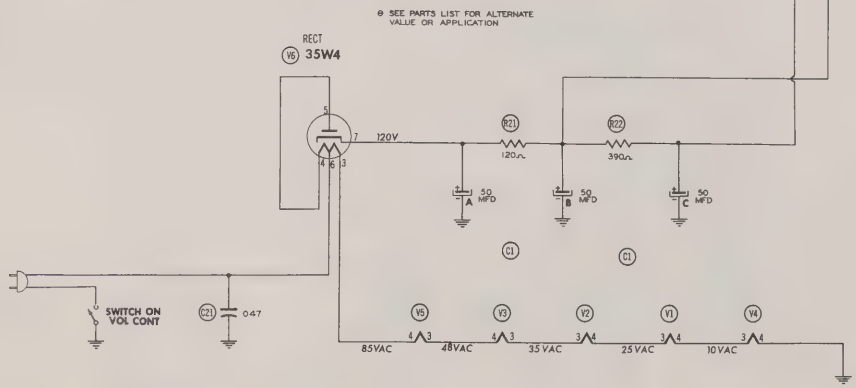


IF = 455 KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE



⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION



RESISTANCE READINGS

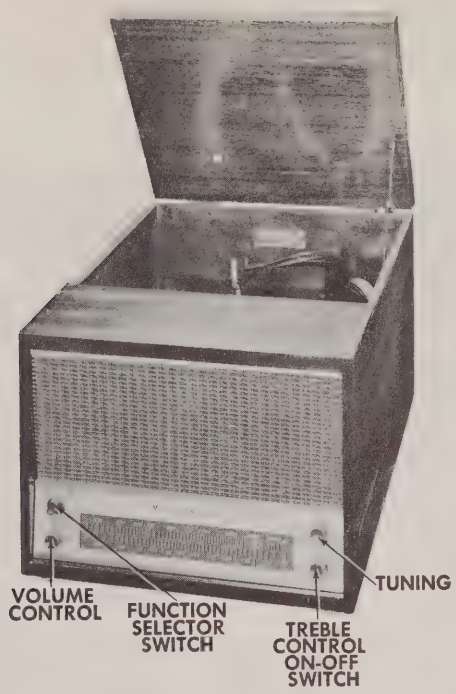
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BA6	4.7Meg	33Ω	24Ω	12Ω	†7.4KΩ	†1.7KΩ	33Ω
V 2	12BE6	22KΩ	.8Ω	36Ω	24Ω	†1.7KΩ	†1.7KΩ	4.7Meg
V 3	12BA6	3.2Meg	0Ω	36Ω	48Ω	†1.7KΩ	†1.7KΩ	0Ω
V 4	12AV6	2.7Meg	0Ω	12Ω	0Ω	0Ω	550KΩ	†500KΩ
V 5	35C5	150Ω	500KΩ	48Ω	85Ω	500KΩ	†500Ω	†310Ω
V 6	35W4	0Ω	INF	85Ω	110Ω	110Ω	117Ω	1.5Meg

ALL READINGS WITH BANDSWITCH IN "BROADCAST" POSITION
† MEASURED FROM PIN 7 OF V6

1. DC voltage measurements taken with vacuum tube voltmeter, AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurement.

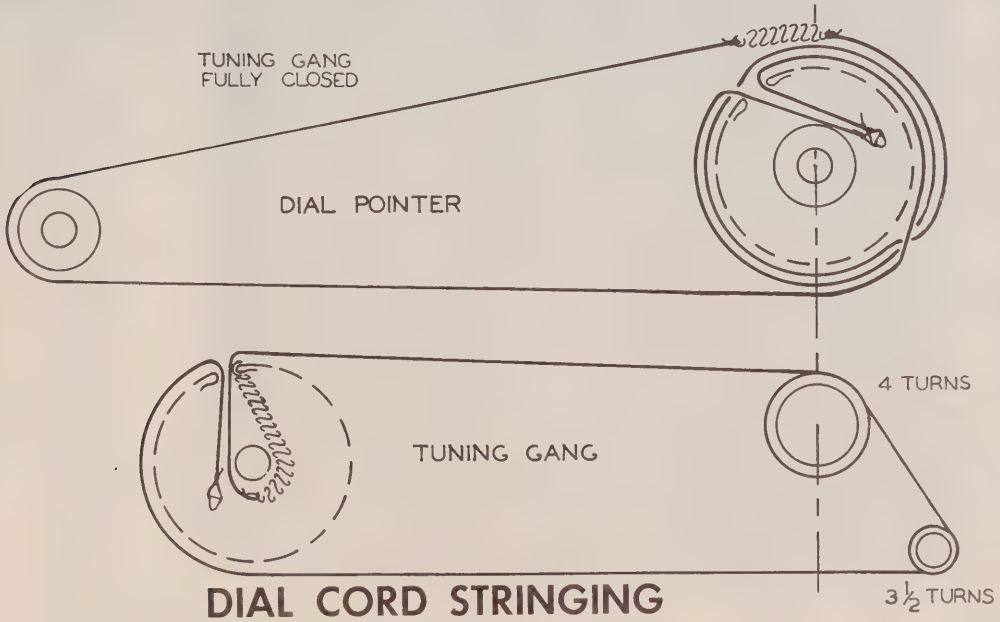
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W Sams & Co., Inc. 1955

MAGNAVOX CHASSIS
CR-702A, B (260M Series)



TRADE NAME	Magnavox Chassis CR-702A, B (260M Series)		
MANUFACTURER	Magnavox Co., 2131 Bueter Rd., Ft. Wayne, Ind.		
TYPE SET	AC Operated AM-FM-Phono Combination Superheterodyne Receiver		
TUBES	Ten		
POWER SUPPLY	110-120 Volts AC - 60 Cycles	RATING	.66 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540KC - 1620KC	FREQ. MOD.	FM 88MC - 108MC

RECORD CHANGER UNIT - MAGNAVOX MODEL 521734

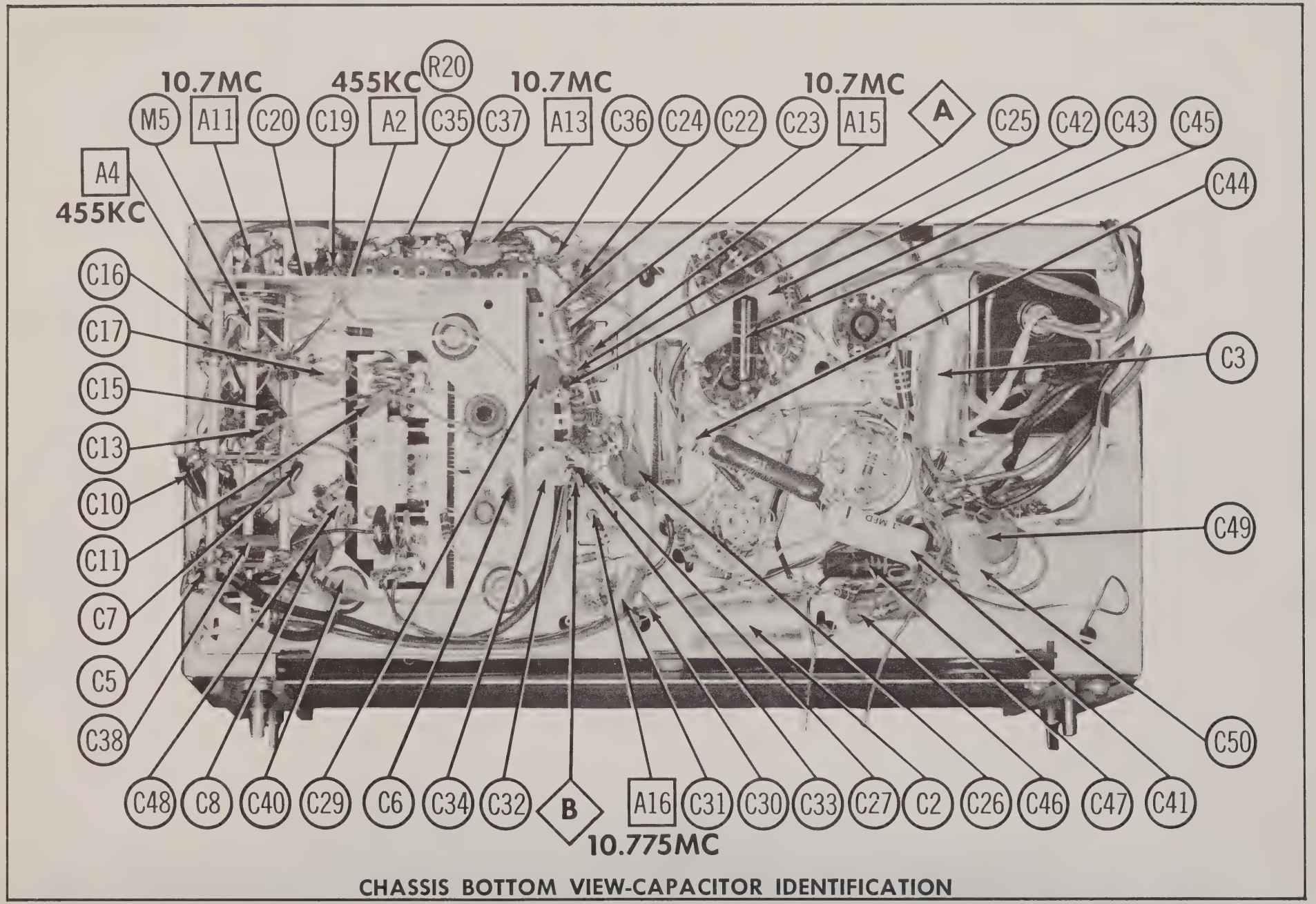


DIAL CORD STRINGING

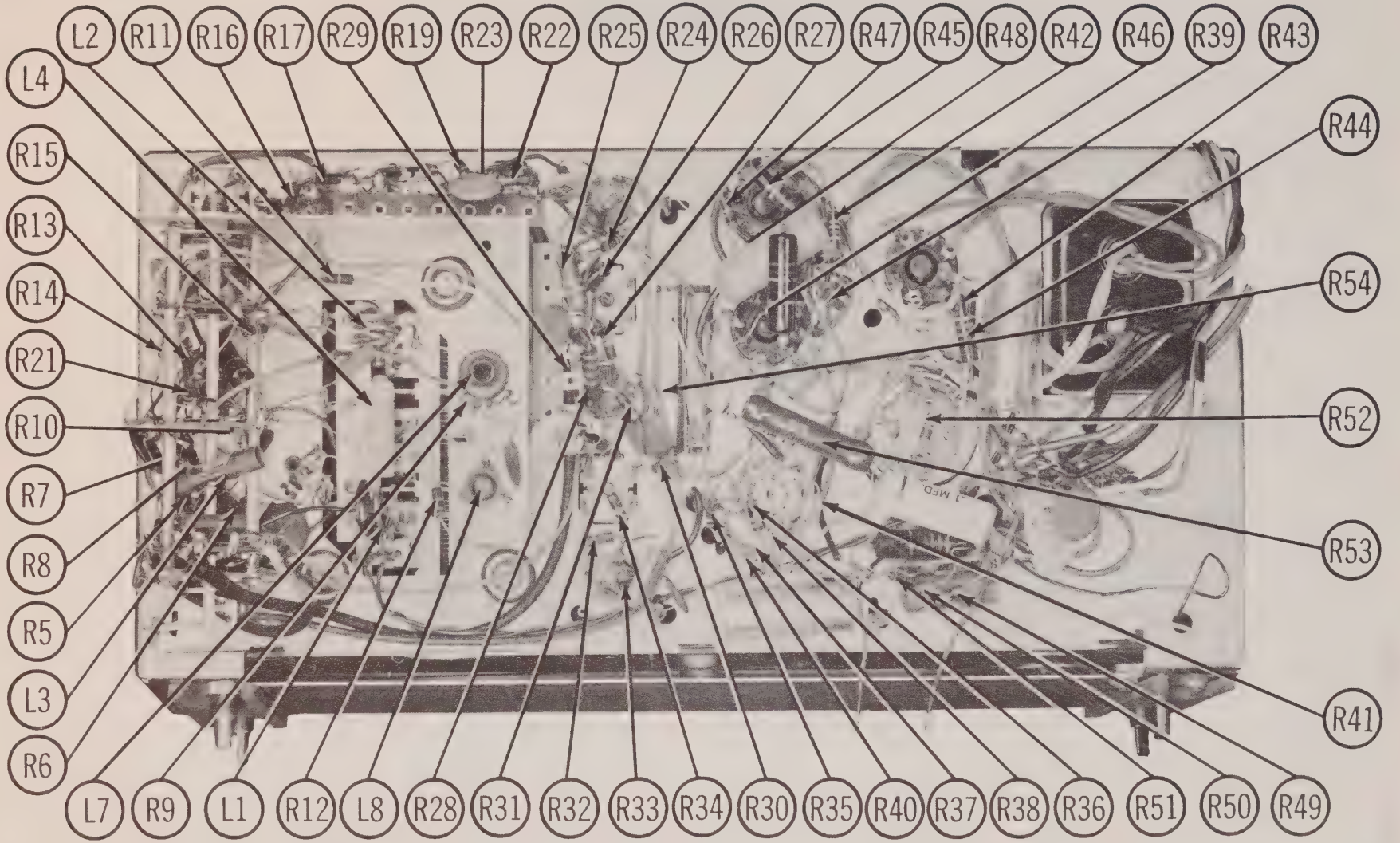
MAGNAVOX CHASSIS
CR-702A, B (260M Series)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

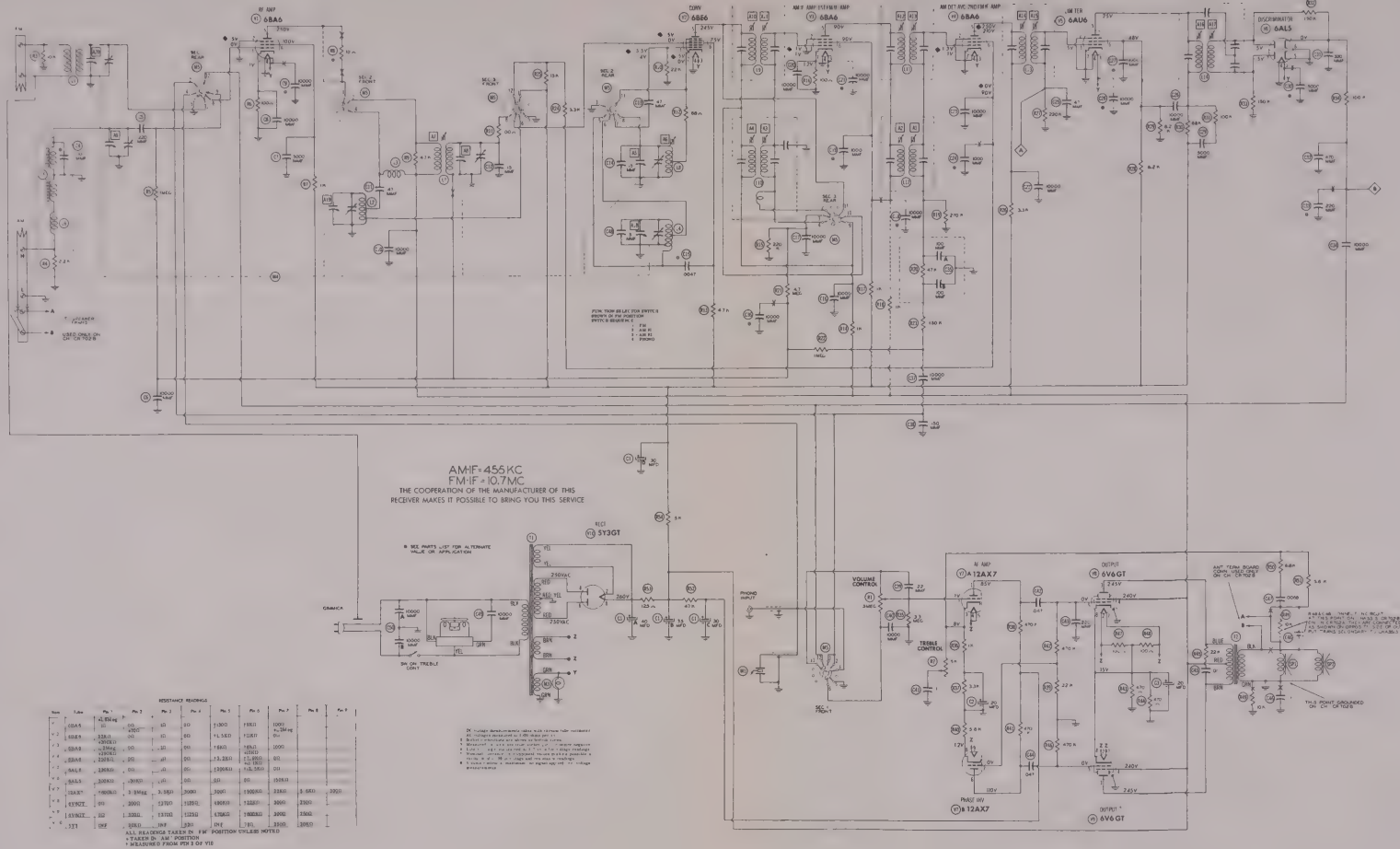


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

MAGNAVOX
CHASSIS CR-702A, B (260M Series)


AM·IF=455 KC
FM·IF = 10.7MC
THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
RESISTANCE READINGS
ALL READINGS TAKEN IN "FM" POSITION UNLESS NOTED
* TAKEN IN "AM" POSITION
+ MEASURED FROM PIN 2 OF V18
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1955
271-6

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Turn treble control to sharp tune position.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1	.01MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	455KC (400∿ Mod.)	AM	1000KC	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2	"	"	1400KC	"	1400KC	"	A5	"
3	"	"	600KC	"	600KC	"	A6, A7	"
4	Direct	Loop	1400KC	"	1400KC	"	A8, A9	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5	.01MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	10.7MC (Unmod)	FM	Low freq. end of dial.	DC probe thru 1Meg to point (A). Common to chassis.	A10, A11, A12, A13, A14, A15	Adjust for maximum deflection.
6	"	"	10.775MC	"	"	DC probe thru 1Meg to point (B). Common to chassis.	A16, A17	"
7	"	"	10.7MC	"	"	"	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
8	"	"	10.625MC	"	"	"	A16	Adjust for equal peaks of opposite polarity similar to Fig. 1.
9	"	"	10.775MC	"	"	"	A16	"

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5	.01MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	10.7MC (300KC Swp)	FM	Low freq. end of dial.	Vert. amp. thru 1Meg to point (A). Low side to chassis.	A10, A11, A12, A13, A14, A15	Adjust for curve of maximum amplitude and symmetry similar to Fig. 2.
6	"	"	"	"	"	"	A16, A17	Adjust A16 for maximum amplitude and straightness of crossover lines similar to Fig. 3. Adjust A17 for curve of maximum amplitude and symmetry near 10.7MC similar to Fig. 3. Continue alignment with step #10.

RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
10	300Ω carbon resistor	High side thru 300Ω to ungrounded FM antenna terminal. Low side to chassis.	107MC	FM	107MC	DC probe thru 1Meg to point (A). Common to chassis.	A18, A19, A20	Adjust for maximum deflection with signal generator output set for 3 volts on VTVM.

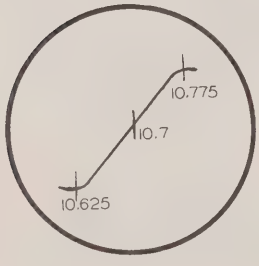


FIG. 1

FIG. 2

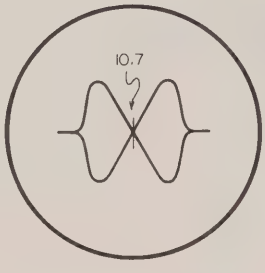


FIG. 3

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

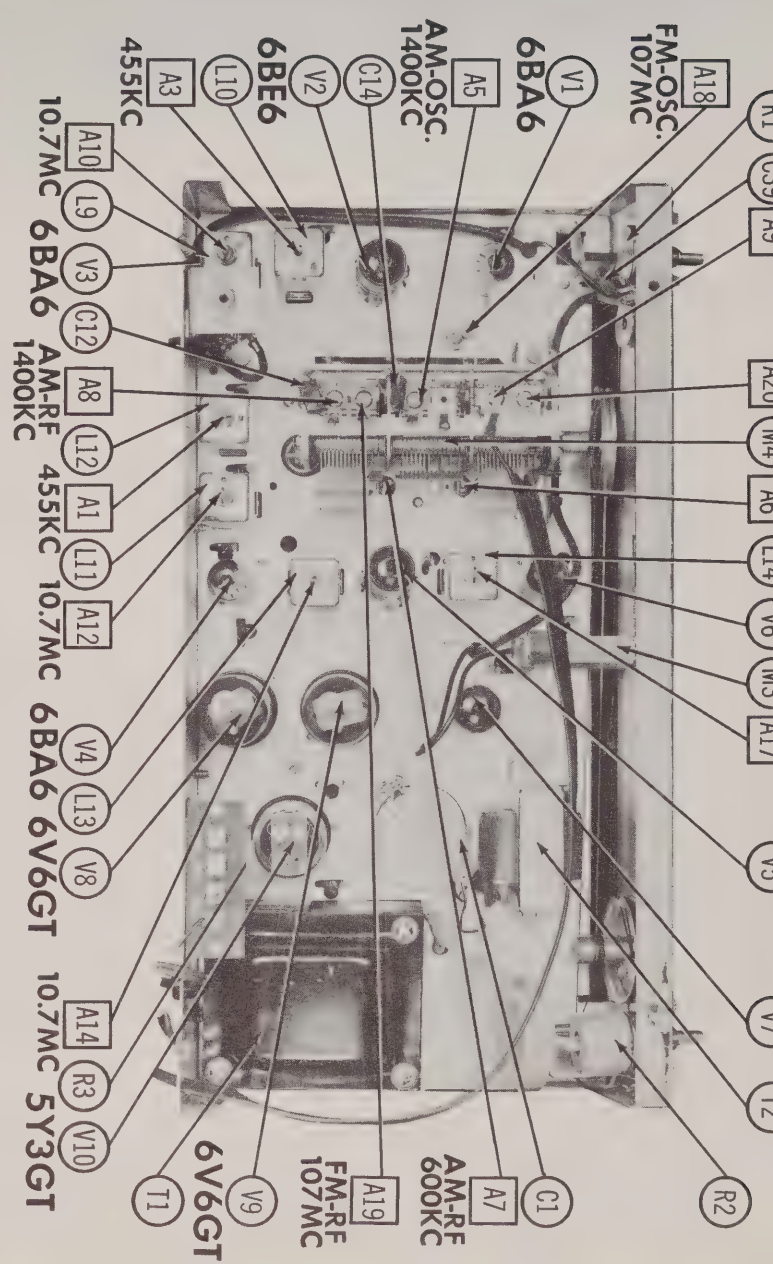
ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		MAGNAVOX PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6BA6	6BA6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	AM IF Amp. - 1st FM IF Amp.	6BA6	6BA6	7BK	
V4	2nd FM IF Amp. - AM Det-AVC	6BA6	6BA6	7BK	
V5	Limiter	6AU6	6AU6	7BK	
V6	Discriminator	6AL5	6AL5	6BT	
V7	AF Amp. - Phase Inverter	12AX7	12AX7	9A	
V8	Output	6V6GT	6V6GT	7S	
V9	Output	6V6GT	6V6GT	7S	
V10	Rectifier	5Y3	5Y3	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	▲40	350	270021-43							
B	■35	350								
C	30	350								
D	▲30	350								
C2	20	25	270027-2	PRS25/25		BR202		TC26	TVA-1205	
C3	20	25	270027-2	PRS25/25		BR202		TC26	TVA-1205	
C4	10			SI10	D6-100	TP09	GP1K-100	UC-541	5GA-Q1	Note 1
C5	220	500	250207-48	SI220	D6-221	TP39	GP2K-221	UC-5322	5GA-T22	
C6	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C7	5000	600	250175-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C8	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C9	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	Note 1
C10	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C11	47	500	250187-49	1468-470	D6-470	5W5Q47	GP1K-470	MC225	1FM-45	
C12	15	500	250187-43	1469-150	TCZ-15	22R5Q15	NP0K-150	ZT-5415	MS-415	
C13	47	500	250207-11	SI47	D6-470	TP29	GP1K-470	UC-5447	5GA-Q47	
C14	15	500	250187-43	1469-150	TCZ-15	22R5Q15	NP0K-150	ZT-5415	MS-415	
C15	.0047	400		P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	Note 4
C16	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C17	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C18	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	Note 1
C19	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	Note 2
C20	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C21	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	Note 1
C22	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C23	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C24	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	Note 1
C25	47		250207-11	SI47	D6-470	TP29	GP1K-470	UC-5447	5GA-Q47	
C26	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C27	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	Note 2
C28	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	Note 1
C29	5000	600	250175-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	Note 2
C30	5000	600	250175-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	Note 1
C31	330	500		1468-331	D6-331	5W5T33	GP2K-331	UC-5333	5GA-T33	Note 3
C32	470	500	250207-50	SI470	D6-471	TP46	GP2K-471	UC-5347	5GA-T47	
C33	220	500		BPD-221	D6-221	G051	811-221	UC-5322	5GA-T22	Note 1
C34	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C35A	100		♦250170-1	♦PA-97-1	♦PC-50	♦1111TM1	♦1403-01	UC-531	♦D-1	
B	100							UC-531		
C36	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	Note 1
C37	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C38	150	500	250159-84	1468-151	D6-151	5W5T15	GP2K-151	MC236	1FM-315	
C39	22	500	250187-45	1468-220	D6-220	5W5Q22	GP1K-220	MC220	1FM-425	
C40	10000	600	250175-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C41	.1	200	250202-13	P288-1	DF-104	CUB2P1		PT401	2TM-P1	
C42	.047	600	250201-11	P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C43	220	500	250159-86	1468-221	D6-221	5W5T22	GP2K-221	MC240	1FM-325	
C44	.047	600	250201-11	P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C45	.01	600	250201-7	P688-01	D6-103	CUB6S1	GP2-333-103	PT611	6TM-S1	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C46	.1	200	250202-13	P288-1	DF-104	CUB2P1		PT401	2TM-P1	
C47	.0068	600	250201-6	P688-0068	D6-682	CUB6D68	GP2-333-682	PT6268	6TM-D68	
C48	3		250088-102	SI3NP0	TCZ-3	Z007	NP0A-030	ZT-5533	5TCCB-V3	
C49	10000	1000	250219-2		DD16-103				10HK-S1	
C50A	10000	1000	250219-3		DD16-103				10HK-S1	
B	10000	1000			DD16-103				10HK-S1	

Note 1. Not used in all versions.
Note 2. Some versions use 10000MMF in this application (part no. 250175-2).
Note 3. Some versions use 47MMF in this application (part no. 250207-11).
Note 4. Some versions use 5000MMF in this application (part no. 250175-1).
♦ Items C35A, C35B, R20 are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MAGNAVOX PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	3Meg	½	220072-24	Q13-140	A47-3Meg-Z	B-85	U-57	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
R2A	5000Ω	½	220123-1	Q17-114		AB-12		Treble
B	Shaft		Not Req.	Not Req.		AK-3		Attach to R2A
C	Switch		Not Req.	76-1		KB-1		Attach to R2A

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA MAGNAVOX PART No.	IRC PART No.	NOTES
R3	10KΩ	½	230104-74	BTS-10K	
R4	2200Ω	½		BTS-2200	
R5	1Meg	½	230104-98	BTS-1Meg	
R6	100Ω	½	230104-50	BTS-100	
R7	1000Ω	½	230104-62	BTS-1000	
R8	10Ω	½		BTS-10	Note 1
R9	4700Ω	½	230104-70	BTS-4700	
R10	22KΩ	½	230104-78	BTS-22K	
R11	100Ω	½	230104-50	BTS-100	
R12	68Ω	½	230104-48	BTS-68	
R13	4700Ω	½	230104-70	BTS-4700	
R14	1000Ω	½	230104-62	BTS-1000	
R15	220KΩ	½	230104-90	BTS-220K	
R16	100Ω	½	230104-50	BTS-100	
R17	1000Ω	½	230104-62	BTS-1000	
R18	1000Ω	½	230104-62	BTS-1000	
R19	270KΩ	½	230104-91	BTS-270K	
R20	47KΩ	½	♦250170-1	BTS-47K	
R21	4.7Meg	½	230104-106	BTS-4.7Meg	
R22	1Meg	½	230104-98	BTS-1Meg	
R23	150KΩ	½	230104-88	BTS-150K	
R24	3300Ω	½	230104-68	BTS-3300	
R25	15KΩ	1	230105-76	BTA-15K	
R26	3300Ω	1	230105-68	BTA-3300	
R27	220KΩ	½	230104-90	BTS-220K	
R28	8200Ω	1	230104-73	BTA-8200	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA MAGNAVOX PART No.	IRC PART No.	NOTES
R29	8200Ω	1	230104-73	BTA-8200	
R30	68KΩ	½	230104-84	BTS-68K	
R31	100KΩ	½	230104-86	BTS-100K	
R32	150KΩ	½	230104-88	BTS-150K	
R33	150KΩ	½	230104-88	BTS-150K	
R34	100KΩ	½	230104-86	BTS-100K	
R35	3.3Meg	½	230104-104	BTS-3.3Meg	
R36	1000Ω	½	230104-62	BTS-1000	
R37	3300Ω	½	230104-68	BTS-3300	
R38	470KΩ	½	230104-94	BTS-470K	
R39	22KΩ	½	230104-78	BTS-22K	
R40	5600Ω	½	230104-71	BTS-5600	
R41	470KΩ	½	230104-94	BTS-470K	
R42	470KΩ	½	230104-94	BTS-470K	
R43	470Ω	1	230105-58	BTA-470K	
R44	470Ω	1	230105-58	BTA-470K	
R45	22KΩ	1	230105-78	BTA-22K	
R46	470KΩ	½	230104-94	BTS-470K	
R47	100Ω	½	230104-50	BTS-100	
R48	100Ω	½	230104-50	BTS-100	
R49	10KΩ	½	230104-74	BTS-10K	
R50	6800Ω	½	230104-72	BTS-6800	
R51	5600Ω	½	230104-71	BTS-5600	
R52	47KΩ	½	230104-82	BTS-47K	
R53	125Ω	5	240021-11	1 3/4A-125	
R54	5000Ω	11	240035-4		

Note 1: Not used in some versions.
♦ Items R20, C35A and C35B are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA MAGNAVOX PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @ .66A	520VCT .00ADC	5VAC @ 2A	6.3VAC @ 1.16A SEC. 4 6.3VAC @ 2.05A	300075-G2					

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA MAGNAVOX PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T2	9.3KΩ CT	1.8Ω	330037-2	A-3823	A-2901	S-53X	Z1007	24S61	

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA MAGNAVOX PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3.5Ω	583671 ①		6A2ILF ①	① Low frequency cone.
SP2	6"	PM	3.6Ω	583663 ②			② High frequency cone.

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MAGNAVOX PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Coil	0Ω	0Ω	360321-2				
L2	FM RF Coil	0Ω		360322-2				
L3	RF Choke	.2Ω			19-1003		4608	4 Microhenries
L4	FM Osc. Coil	0Ω		360323-1				Tapped
L5	AM Ant. Coil	.4Ω		460879-2				Tapped at .1Ω
L6	RF Choke	7.5Ω			19-3250	TV-185	6181	270 Microhenries
L7	AM RF Coil	20Ω	3.6Ω	360329-1	14-1071*		70-A*	
L8	AM Osc. Coil	5Ω		360407-1	14-1033	BC-381■	71-Osc.■	Tapped at .4Ω
L9	1st FM IF	.7Ω	.7Ω	36-374-1	16-3487	FM-254	1463	
L10	AM Input IF	10Ω	10Ω	360508-1				
L11	2nd FM IF	.7Ω	.7Ω	360374-1	16-3487	FM-254	1463	
L12	AM Output IF	11Ω	11Ω	360373-1	16-6758	BC-353	12-C2	
L13	3rd FM IF	.7Ω	.7Ω	360374-1	16-3487	FM-254	1463	
L14	Discriminator	.5Ω	1.4ΩCT	360375-1	17-3484▲	FM-253	1464	

* Leads sufficient mounting support.
■ Use secondary winding only.
▲ Enlarge chassis hole and drill mounting holes.

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA MAGNAVOX PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1						47	0-1 or S-1 and 0-3	

ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

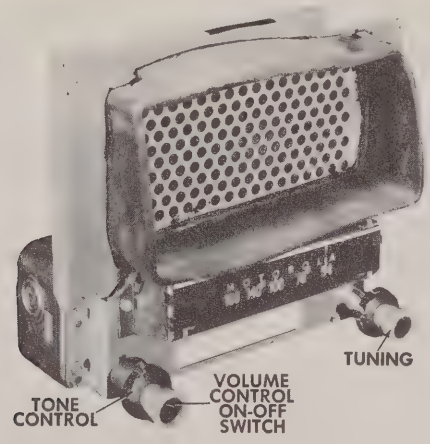
ITEM No.	REPLACEMENT DATA MAGNAVOX PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	REMARKS
M2		†S-66 or †♦S-66SD or ♦S-66D	†AC-434 or †♦AC-434D1 or †♦AC-434D2 or ♦AC-434D	†W-75TPS or †♦W-75DS or ♦W-75TPD	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M3	Dial Light	180161-6	#44, Bayonet
M4	Tuning Cap.	260103-2	26-540MMF; 26-540MMF; 21-195MMF.
M5	Switch	160242-1	Selector
	Dial Pointer	102426-7	
	Dial Glass and Channel assembly	150393-2	

PR(
L. F. B
392
DENVER, COLORADO

MOTOROLA MODELS CT52M6, HN4M6, HN53M6, SR52M6 (Ch. R16M6 & Pwr. Ch. P6-2, P8-2)



TRADE NAME	Motorola Chassis R16M6 (RF Unit), P6-2 or P8-2 (Audio & Pwr. Supply Unit)
	Model — Automobile
	CT52M6 ..... 1951, 1952 Chevrolet
	HN4M6 ..... 1954 Hudson
	HN53M6 ..... 1951, 1952, 1953 Hudson
	SR52M6 ..... 1950, 1951, 1952 Studebaker
MANUFACTURER	Motorola, Inc., 4545 Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated AM Superheterodyne Custom-Built Automobile Receiver
TUBES	RF Unit - Types 6BD6 RF Amp., 6BE6 Conv., 6BD6 IF Amp., 6AT6 (or) 6CR6 Det.-AVC-AF Amp., Pwr. Unit P6-2 - Types 6AQ5 Output, 6X5 Rectifier; Pwr. Unit P8-2 - Types 6AT6 Phase Inv., (2) 6AQ5 Output, 6X4 Rectifier
POWER SUPPLY RATINGS	6 Volt Storage Battery 6.8 Amp. @ 6.3 Volts DC (P6-2 Pwr. Unit) 8.5 Amp. @ 6.3 Volts DC (P8-2 Pwr. Unit)
TUNING RANGE	535KC-1605KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use alignment tool, Motorola Part No. 66A76278 (or equivalent) for adjustment of tuner cores.
Remove top and bottom covers for alignment adjustments.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Allow approximately a 5 minute warm-up period.
Set tone control to "High" position.
Attenuate signal generator output so as to maintain 1.79 volts on output meter after alignment of each stage.
Use care when adjusting tuning cores, as excessive pressure may move tuner carriage and result in inaccurate alignment.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	455KC (400%Mod)	Extreme high freq. end of dial (cores out)	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	See Fig. 1	High side to antenna receptacle. Low side to chassis.	1605KC	"	"	A5, A6, A7	Pre-set A8, A9, A10 so that 1 5/32" of core projects from end of coil. Adjust A5, A6 and A7 for maximum output.
3.	"	"	1300KC	Using knob turn tuning shaft to right until carriage stops. Turn shaft left to back carriage off 5/32"	"	A8, A9, A10	Adjust for maximum output. Repeat steps 2 and 3. Cement core adjustments in place.
4.	"	"	"	Tune to 1300KC signal	"		If necessary, bend dial pointer to coincide with 1300KC reference mark on dial.
5.	With radio installed in car and antenna fully extended, tune in weak station near 1400KC and adjust A7 for maximum voltage.						

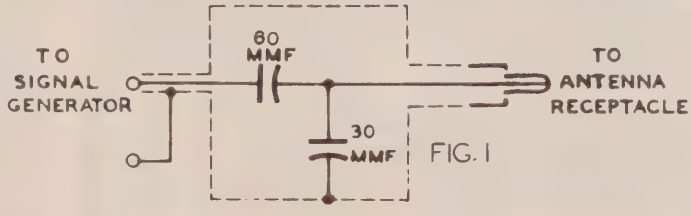


FIG. 1

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

CH. R16M6 PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amplifier	6BD6	6BD6	7BK	
V2	Converter	6BE6	6BE6	7CH	
V3	IF Amplifier	6BD6	6BD6	7BK	
V4	Det.-AVC-AF Amp	6AT6	6AT6	7BT	6CR6 used in some versions of this model

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1	90		21A591682							
C2	.006	100	8R121001	P488-006	D6-602	CUB6D6	GP2-333-602	PT626	6TM-D6	
C3	220	500	21R6591	1468-221	D6-221	5W5T22	GP2K-221	MC240	1FM-325	
C4	5		21R115955	SI5NP0	TCZ-5	Z011	NP0K-555	ZT-555	5TCCB-V47	
C5	47		21R115890	SI47N750	TCN-47	N033	N750K-470	NT-5447	5TCU-Q47	
C6	.05	400	8R121567	P488-05	DF-503	CUB4S5		PT415	4TM-S5	
C7	.05	100	8R13514	P288-05	DF-503	CUB2S5		PT415	2TM-S5	
C8	27			SI27NP0	TCZ-27	Z027	NP0K-270		5TCC-Q27	Note 1
C9	.01	100	8R121002	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C10	.002	600	8R121568	P688-002	D6-202	CUB6D2	GP2-333-202	PT622	6TM-D2	
C11	.02	400	8R121566	P488-02	DF-203	CUB4S2	817-02	PT412	4TM-S2	
C12	.5	100	8K17028	P185-5		MP2P5		RF480	68P20	

Note 1. Not used in all versions.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	100KΩ	½	18B512084	*QJ-399A		F1-31	UF15L	Tone - Panel - Note 1
B	250KΩ	½				R4-37	UR254-T753	Volume-tapped @ 75KΩ-rear
C	Switch					KB-4	US-26	Attach to R1B
R1A	1Meg	½	18K531789				UF16L	Tone-Panel-Note 2
B	250KΩ	½					UR254-T753	Volume-tapped @ 30KΩ-rear
C	Switch						US-26	Attach to R1B

* CONCENTRIKIT EQUIVALENT: KIT K-2, BASE ELEMENTS & SHAFTS : B11-128 & P1-206 (Panel)
B18-130X & R1-220 (Rear)
76-1 SWITCH

Note 1. Model SR52M6 uses control part no. 18K531788.
Note 2. Used in Models HNE3M6 & HN4M6 only.

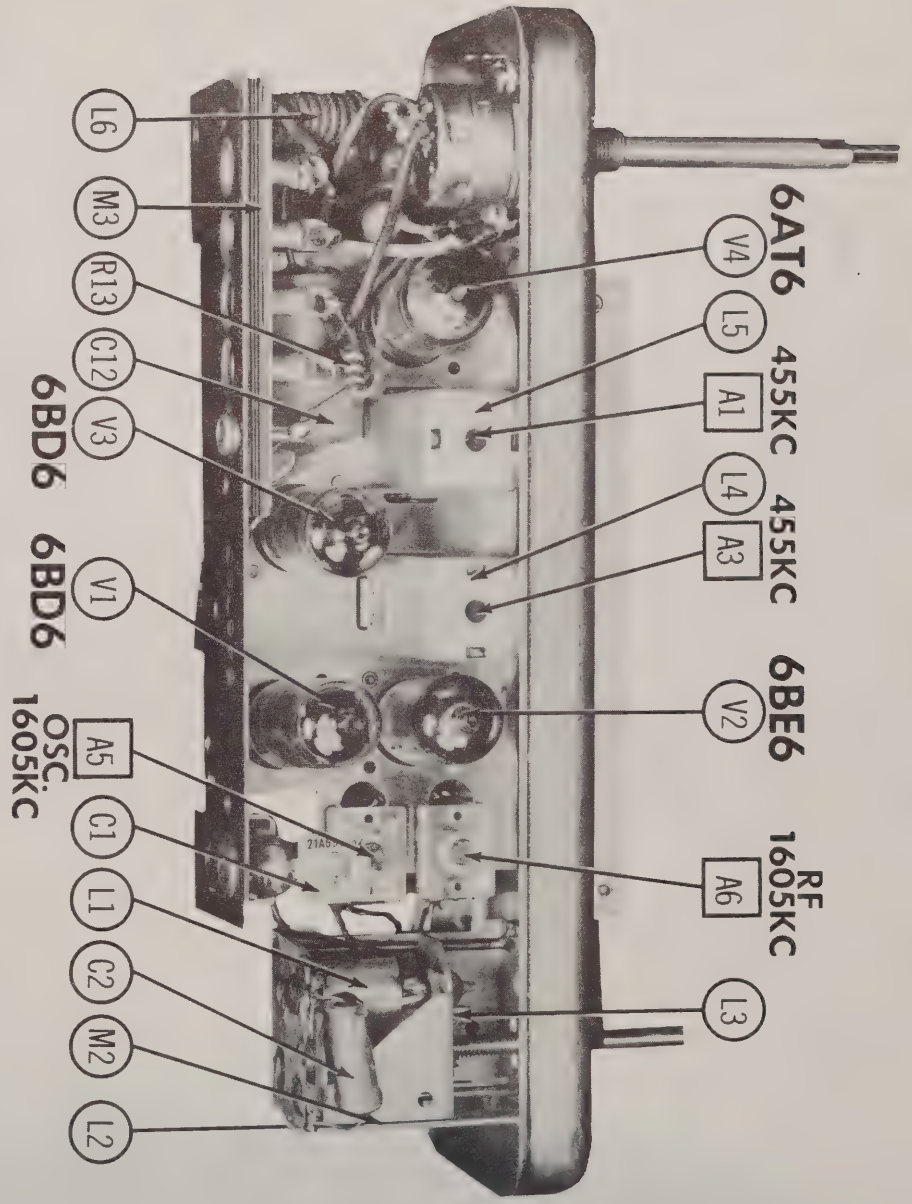
RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	NOTES
R2	470KΩ	½	6R6032	BTS-470K	
R3	1000Ω	½	6R6229	BTS-1000	
R4	15KΩ	½	6R6447	BTS-15K	
R5	22KΩ	½	6R6028	BTS-22K	
R6	330Ω	½		BTS-330	Note 1
R7	6800Ω	2	6R5690	BTB-6800	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MOTOROLA PART No.	IRC PART No.	NOTES
R8	1Meg	½		BTS-1Meg	Note 2
R9	1Meg	½	6R6004	BTS-1Meg	
R10	2.2Meg	½	6R3927	BTS-2.2Meg	
R11	2700Ω	½		BTS-2700	Note 2
R12	15KΩ	½	6R2119	BTS-15K	
R13	330KΩ	½		BTS-330K	Note 3

Note 1. Some versions may use a 560Ω resistor in this application.
Note 2. Not used in some versions.
Note 3. Some versions may use a 220KΩ resistor in this application.

CHASSIS—TOP VIEW



CH. R16M6 **PARTS LIST AND DESCRIPTIONS (Continued)**

SPEAKER

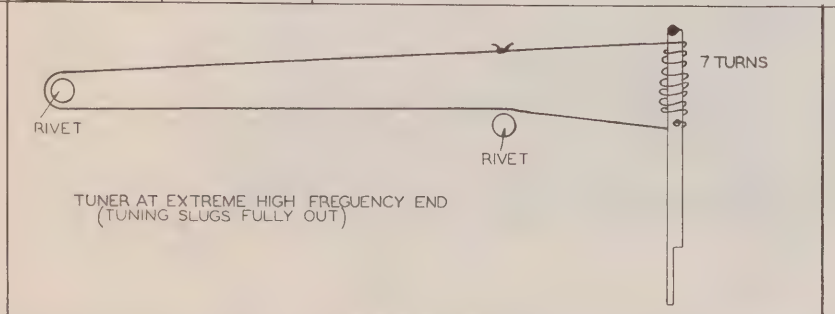
ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	6 x 9"	PM	3.3Ω	50C513197 50C513193 50C513195 ① 50C513544 50C513200 50K513194 50K513196 50K513198 ② 50K513545 50K513201 50K532562 ③	ST-812 P69-S	69A3	① Alternate 6 x 9" speakers. ② 6"x9" speakers used in Models HN53M6 and HN4M6 ③ 6"x9" speaker used in Model HN4M6

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	1Ω		24B520694				
L2	RF Coil	1Ω		24K520695				
L3	Osc. Coil	.5Ω	4Ω	24B520693				
L4	Input IF	18Ω	18Ω	24C485553	16-6758	BC-352	12-C1	
L5	Output IF	18Ω	18Ω	24C485555	16-6754	BC-355	12-C6	
L6	Fil. Choke	0Ω		24K592269			5221	1 Microhenry

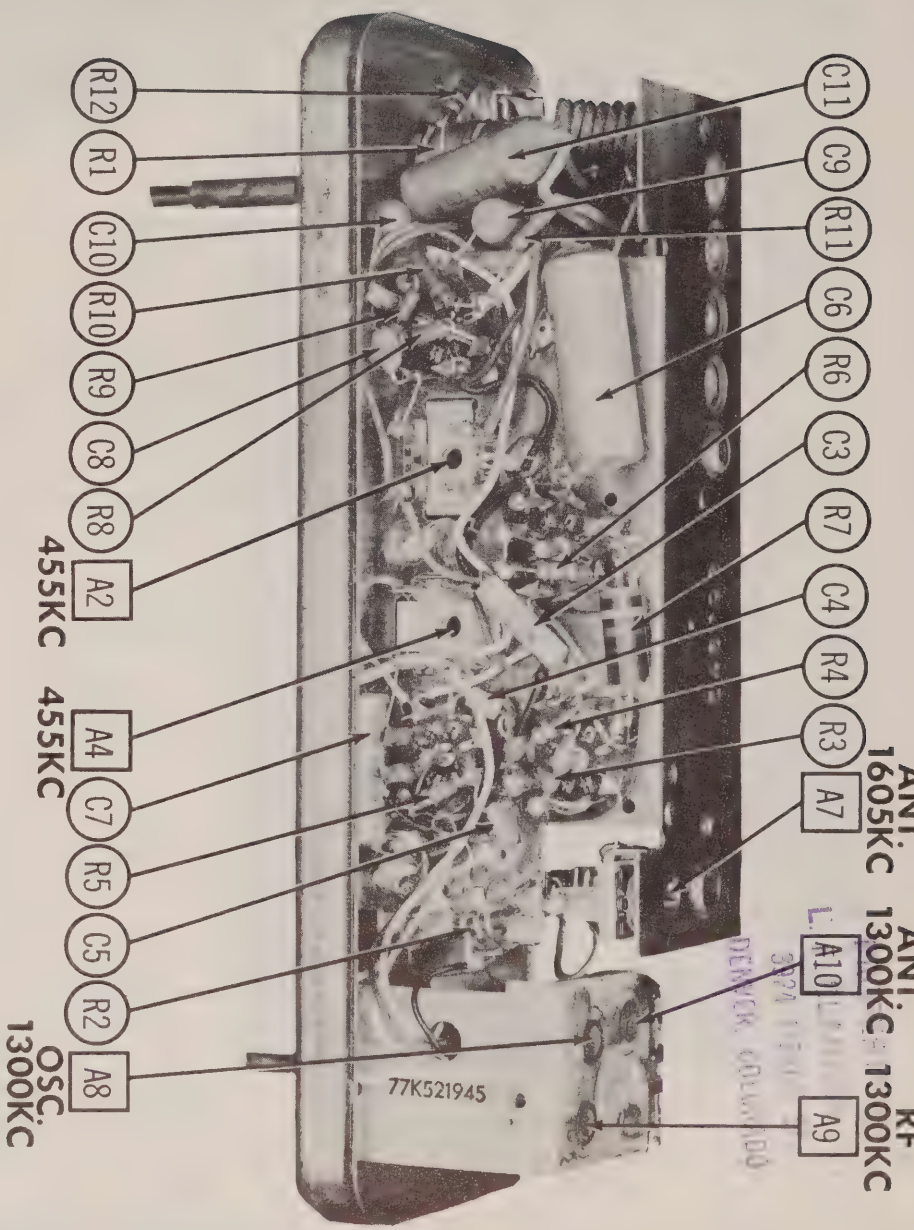
MISCELLANEOUS

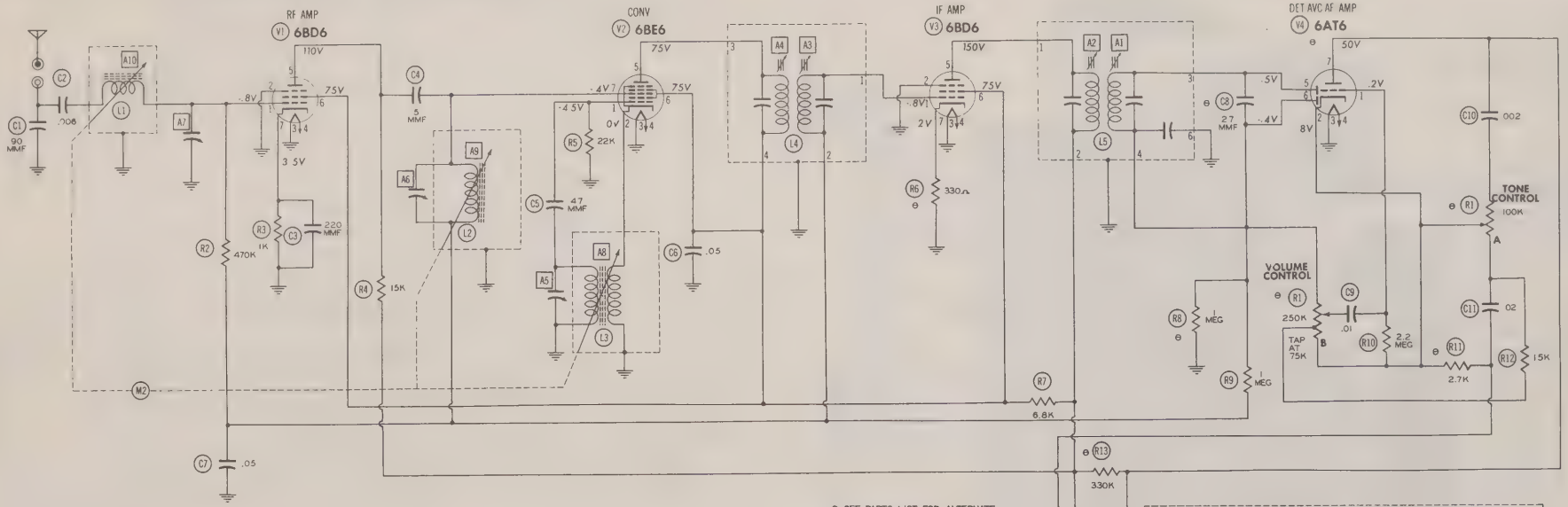
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	Dial Light	65X10867	#44, Bayonet
M2	Tuner	77K521945	Permeability - Model CT2M6, CT52M6
	Tuner	77K521944	Permeability - Model SR52M6
	Tuner	77K530694	Permeability - Models HN53M6, HN4M6
M3	Spark Plate	1B592133	
A5	Trimmer Cap.	20A485708	Osc. Trimmer (395-470MMF)
A6	Trimmer Cap.	20A481526	RF Trimmer (20-180MMF)
A7	Trimmer Cap.	20A512456	Ant. Trimmer (20-180MMF)
	Knob	1U513035	Tuning or volume - Models SR52M6, HN53M6, HN4M6
	Knob	1U513351	Tuning or volume - Models CT2M6, CT52M6
	Knob	36K512160	Disc (tone) - Models SR52M6, CT2M6, CT52M6
	Knob	36B513220	Disc (Tone) - Models HN53M6,HN4M6
	Knob	36K473550	Disc (Dummy) - Models SR52M6, C T2M6, CT52M6
	Knob	36K513223	Disc (Dummy) - Models HN53M6, HN4M6
	Dial Scale	34K520192	Model SR52M6
	Dial Scale	34B513350	Models CT2M6, CT52M6
	Dial Scale	34B530358	Models HN53M6, HN4M6
	Pointer & Slider Assy.	1K512465	Models SR52M6, HN53M6, HN4M6
	Pointer & Slider Assy.	1A513346	Models CT2M6, CT52M6



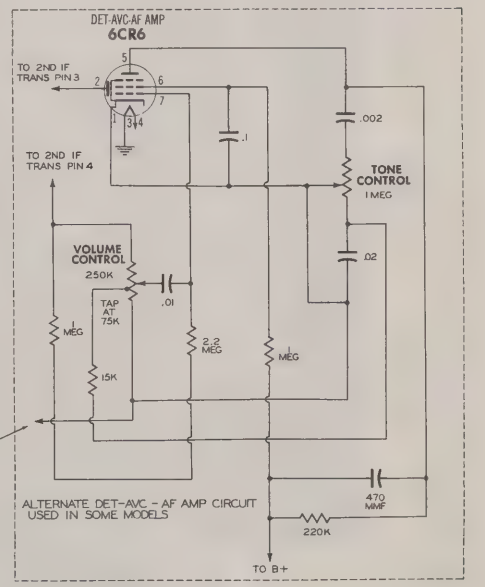
DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW





θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	6BD6	2.5Meg	0Ω	0Ω	.1Ω	†15KΩ	†6.8KΩ	1KΩ
V 2	6BE6	22KΩ	.4Ω	0Ω	.1Ω	†6.8KΩ	†6.8KΩ	2Meg
V 3	6BD6	2Meg	0Ω	0Ω	.1Ω	†0Ω	†6.8KΩ	330Ω
V 4	6AT6	2.4Meg	2.7KΩ	0Ω	.1Ω	250KΩ	1Meg	†220KΩ

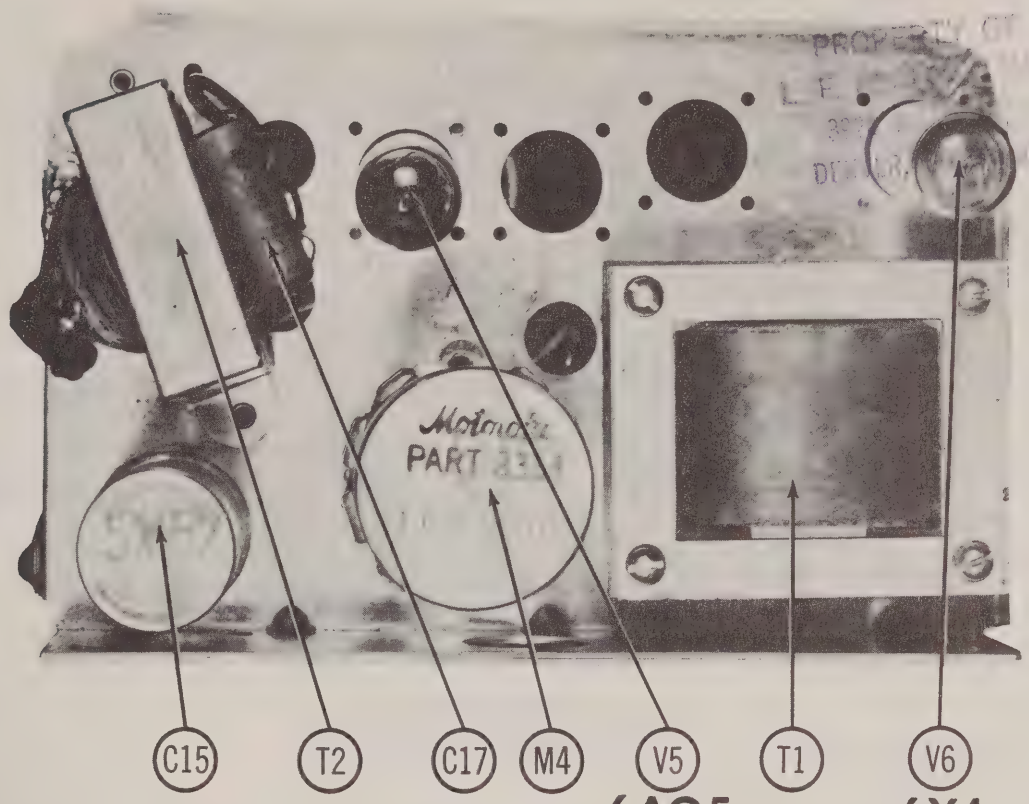
† MEASURED FROM B+ PIN ON POWER PLUG.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 6.3 volts for voltage readings.
5. Nominal tolerance on components values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

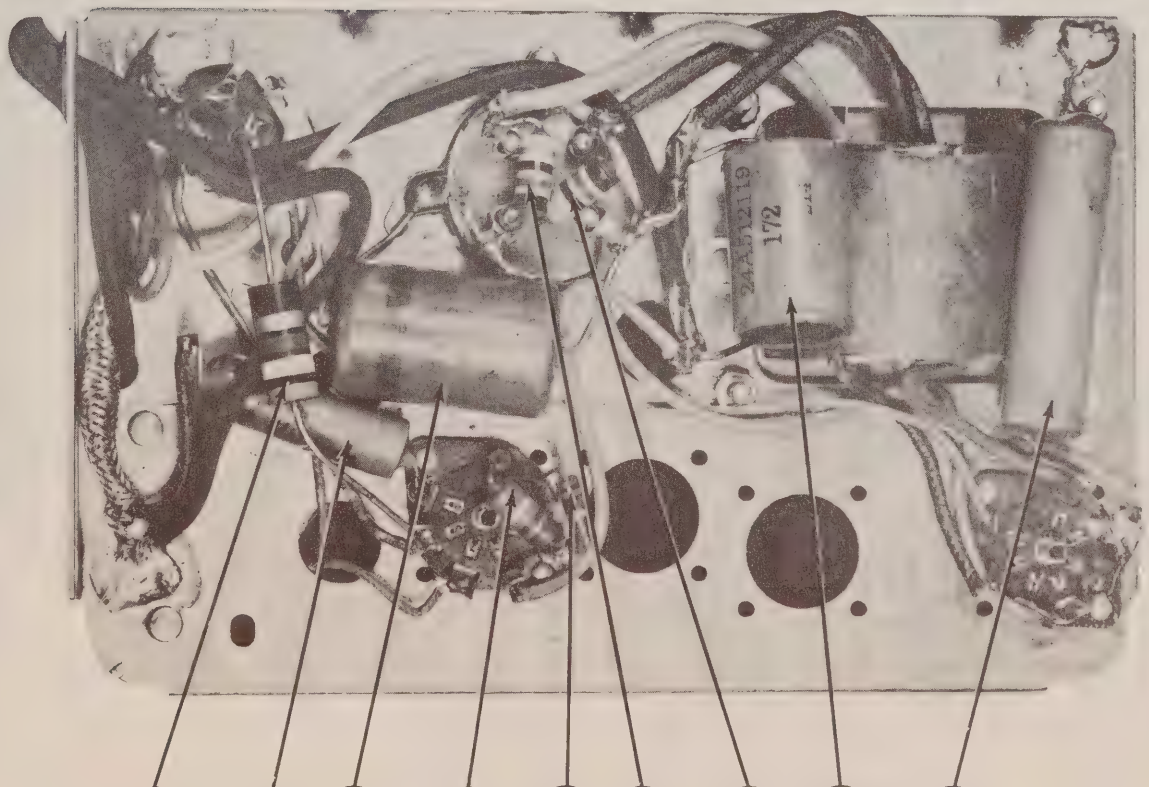
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1955

271-7

CH. R16M6 SCHEMATIC



CH. P6-2 TOP VIEW



CH. P6-2 BOT. VIEW

CH. P6-2 PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V5	Audio Output	6AQ5	6AQ5	7BZ	
V6	Rectifier	6X4	6X4	5BS	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C15A	■30	350	23A473015	AFH3-169		C131		FP331	TVL-3620	
B	▲30	300								
C	20	25								
C16	.02	400	8R12699	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C17	.006	400	8K71910	P688-006	D6-602	PTE6D6	GP2-333-602	PT626	6TM-D6	
C18	.02	1000	8K14137	P1088-02		PTE16S2		PT1612	MB-S2	
C19	.5	100	8K17028	P185-5		MP2P5		RF480	68P20	

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R15	220KΩ	½	6R6015	BTS-220K	
R16	270Ω	½	6R6432	BTS-270	
R17	3900Ω	2	6R476012	BTB-3900	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R18	56Ω	½	6R5614		
R19	56Ω	½	6R5614		

TRANSFORMER (VIBRATOR)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: MOTOROLA PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	6.3VCT @5.4A	464VCT .043ADC			25K512083		P-3068 ①	TV-16K ①	V3803 ①	T-22R27①

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: MOTOROLA PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T2	7.3KΩ	3.2Ω	25B502330	A-3878 ①	A-2931 ①	S-7X	Z1113	26S48 ①	① Drill one new mounting hole.

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L8	Vib. Hash Choke	0Ω		24A512119				47 Microhenries

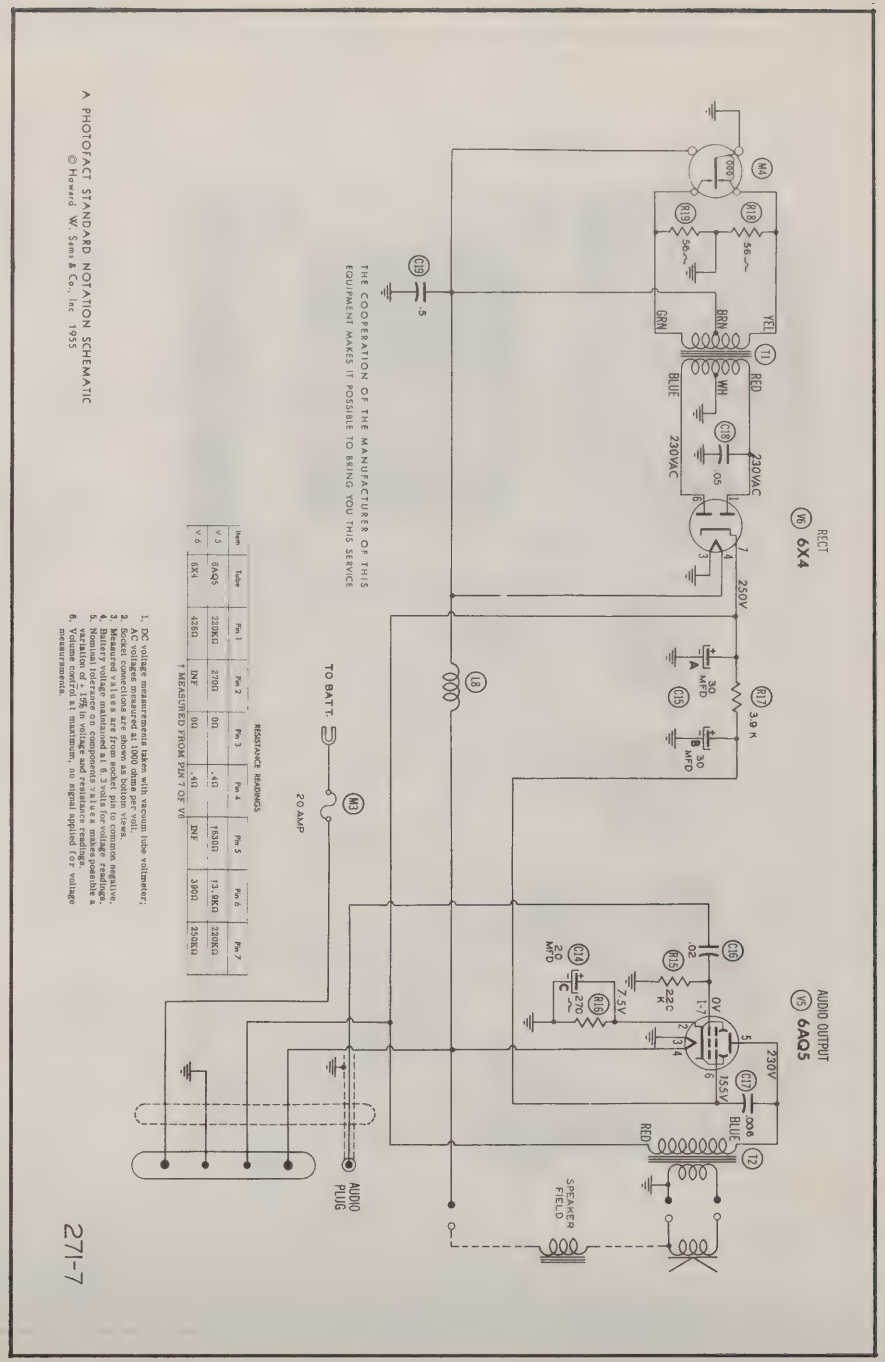
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: MOTOROLA PART No. FUSE	MOTOROLA PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M3	SFE	20A	65K4637	9K592646	307020	157020	SFE-20	HDJ-A

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA: MOTOROLA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	NOTES
M4	Int.	6.3V	115∿	48B3333	5342	859	5342	

CH. P6-2



CH. P8-2 PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V7	Phase Inverter	6AT6	6AT6	7BT	
V8	Audio Output	6AQ5	6AQ5	7BZ	
V9	Audio Output	6AQ5	6AQ5	7BZ	
V10	Rectifier	6X4	6X4	5BS	

CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C20A	■30	350	23A473015	AFH3-169		C131		FP331	TVL-3620	
B	▲30	300								
C	20	25								
C21	.02	400	8R12699	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C22	.02	400	8R12699	P488-02	DF-203	PTE4S2		PT412	4TM-S2	
C23	.003	1000	8R13165	P1088-003		PTE16D3		PT1623	MB-D3	
C24	.02	1000	8K114137	P1088-02		PTE16S2		PT1612	MB-S2	
C25	.5	100	8K17028	P185-5		MP2P5		RF480	68P20	

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R20	680Ω	½	6R6040	BTS-680	
R21	470KΩ	½	6R6377	BTS-470K	
R22	100KΩ	½	6R6075	BTS-100K	
R23	330KΩ	½	6R2096	BTS-330K	
R24	33KΩ	½	6R6410	BTS-33K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA: MOTOROLA PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R25	180Ω	1	6R6390	BTA-180	
R26	1Meg	½	6R6004	BTS-1Meg	
R27	1500Ω	2	6R2005	BTB-1500	
R28	56Ω	½	6R5614		
R29	56Ω	½	6R5614		

TRANSFORMER (VIBRATOR)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA: MOTOROLA PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T3	6.3VCT @5.4A	464VCT .043ADC			25K512083		P-3068 ①	TV-16K①	V3803 ①	T-22R27 ①

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA: MOTOROLA PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T4	7KΩ CT	3.2Ω	25B502331	A-3823 ①	A-2900	S-51X	Z1113	26S48 ①	① Drill one new mounting hole.

COILS (RF-IF)

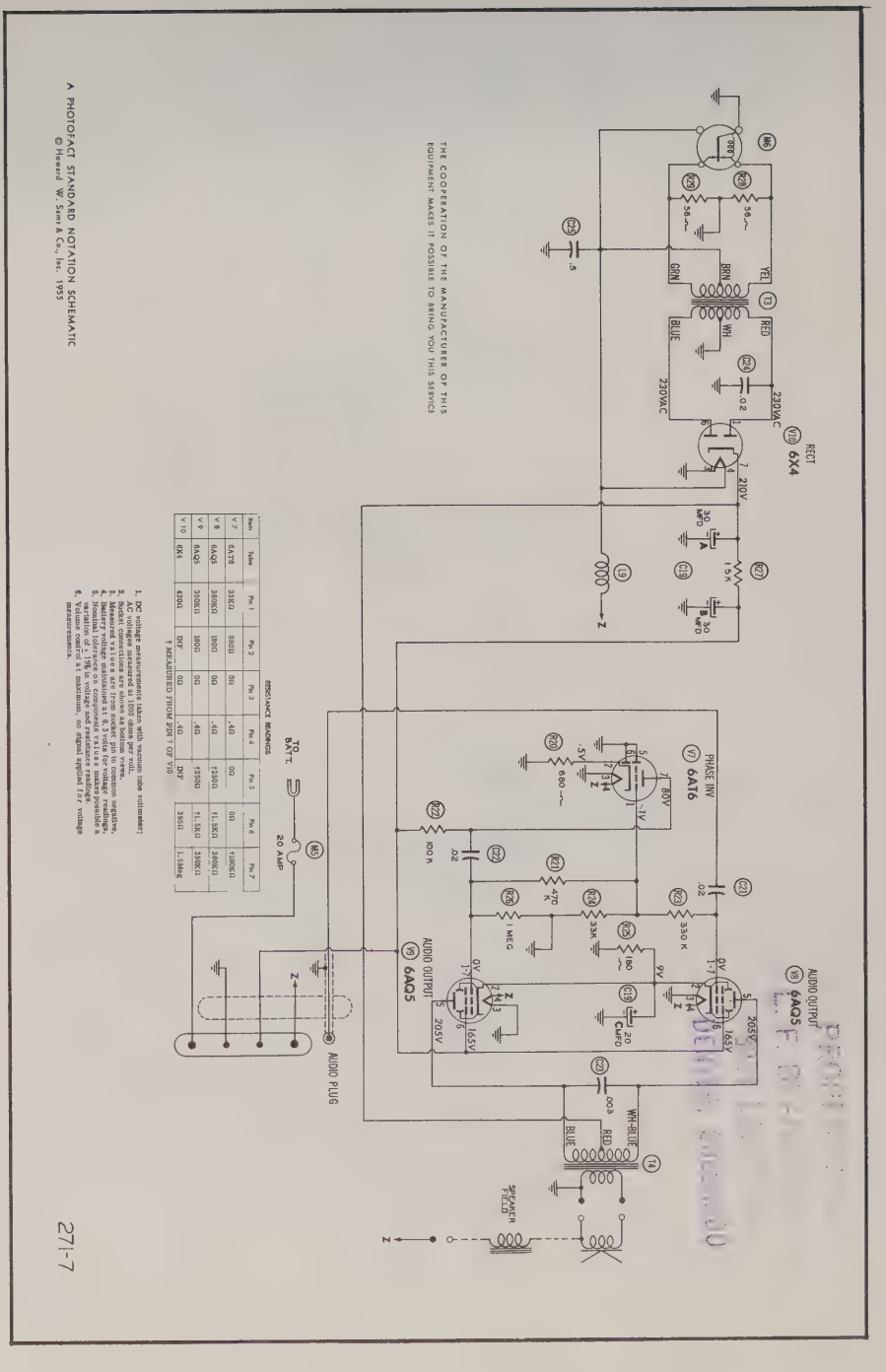
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L9	Vib. Hash Choke	0Ω		24A512119				47 Microhenries

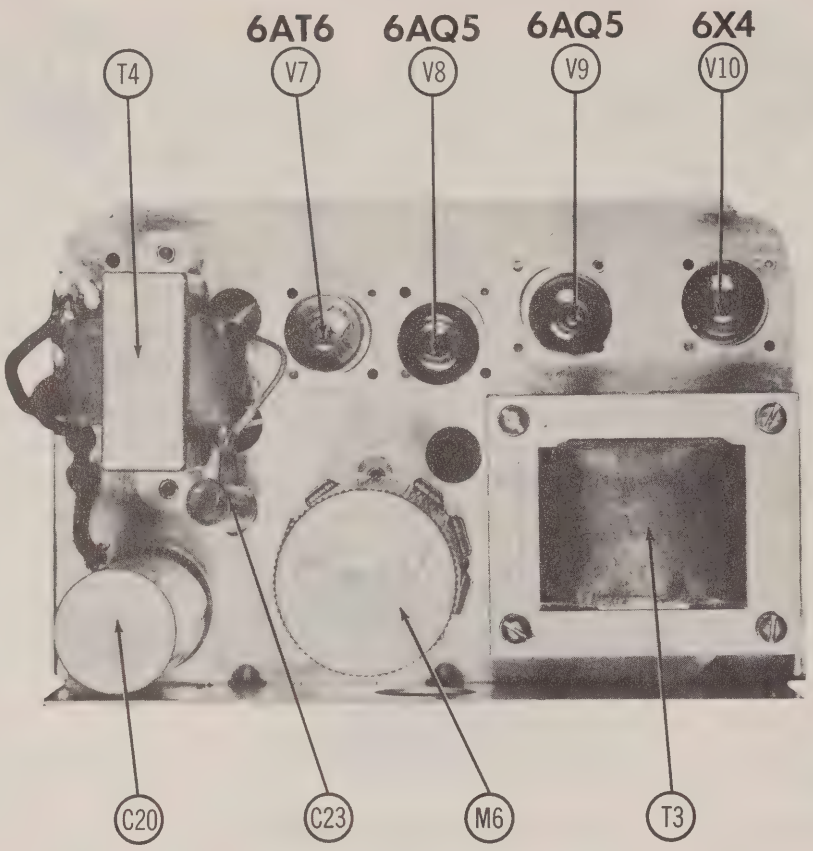
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: MOTOROLA PART No. FUSE	MOTOROLA PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M5	SFE	20A	65K4637	9K592237	307020	157020	SFE-20	HDJ-A

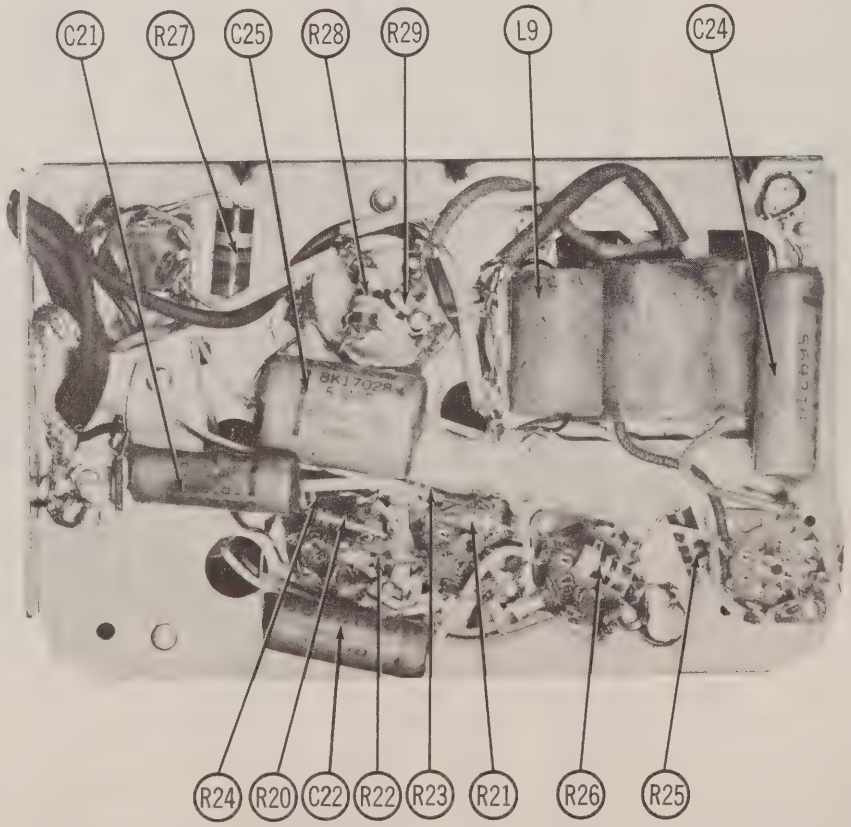
VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA: MOTOROLA PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	NOTES
M6	Int.	6.3V	115∿	48B3333	5342	859	5342	


THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1955
RECT 6X4
PHASE INV 6AT6
AUDIO OUTPUT 6AQ5
AUDIO PLUG
SPEAKER FIELD
TO BATT.
20 AMP
210V
230VAC
205V
165V
80V
9V
0V
-1V
-5V
RESISTANCE READINGS
1. DC voltages measured with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Measured values are from socket pin to common negative.
3. Measured values are from socket pin to chassis.
4. Battery voltage maintained at 6.3 volts for voltage readings.
5. Line voltage maintained at 115 volts for voltage readings.
6. Volume control at maximum, no signal applied for voltage measurements.



CHASSIS P8-2-TOP VIEW



CHASSIS P8-2-BOTTOM VIEW

PROPERTY OF
L. F. C.
DENVER, COLORADO

PHILCO
MODEL C-660 (Code 121)

PHILCO
MODEL C-660 (Code 121)

TRADE NAME	Philco Model C-660 (Code 121)
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	Battery Operated Portable AM Superheterodyne Receiver
TUBES (Four)	Types 1R5 Conv., 1U4 IF Amp., 1U5 Det. -AVC-AF Amp., 3V4 Output
POWER SUPPLY RATINGS	1.5 Volts "A" Supply & 75 Volts "B" Supply 250MA @ 1.5 Volts DC & 9.5 MA @ 75 Volts DC
TUNING RANGE—BROADCAST	540KC-1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (grid) of 1R5 (V1). Low side to chassis.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output.
2.		Loop	1630KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal	"	A5	"
4.		"	600KC	Tune to 600KC signal	"	A6	Adjust for maximum output while rocking tuning gang thru 600KC signal. Repeat steps 2, 3 and 4.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

PHILCO
MODEL C-660 (Code 121)

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		PHILCO PART No.	STANDARD REPLACEMENT		
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1U4	1U4	6AR	
V3	Det. -AVC-AF Amp.	1U5	1U5	6EW	
V4	Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1	10	80	39-2417-32	SRE150/10		BBR10-90			TVA-1406	
C2	.05	200	30-4650-45	P288-05	DF-503	CUB2S5		PT415	2TM-S5	
C3	47		62-047009001	SI47	D6-470	TP29	GP1K-470	UC-5447	5GA-Q47	
C4	5000		30-1238-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C5	5000		30-1238-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	Note 1
C6	3.3		30-1221	SI3. 3NP0	TCZ-3.3	TZ06	NP0K-3R3	ZT-5533	5TCCB-V33	
C7A	1000				DD-102	K069	801-001	DC-521		
B	10000		30-1237	PA-108	DD-103	K082	811-01	DC-511	34C1	
C	220				D6-221	G051	811-221	UC-5322		
D	2000				DD-202	K072	811-002	DC-522		
C8	.004	600	30-4650-56	P688-004	D6-402	CUB6D4	GP2-333-402	PT624	6TM-D4	

Note 1. Used in early production, Run 50, only.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1	1Meg	½	33-5566-53					Volume & Switch

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PHILCO PART No.	IRC PART No.	
R2	100KΩ	½	66-4108340	BTS-100K	
R3	15KΩ	½	66-3158340	BTS-15K	
R4	3.3Meg	½	66-5338340	BTS-3.3Meg	Note
R5	390Ω	½	66-1398240	BTS-390	Note
R6	47Ω	½	66-478240	BTS-47	Note
R7	3.3Meg	½	66-5338340	BTS-3.3Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PHILCO PART No.	IRC PART No.	
R8	10Meg	½	66-6108340	BTS-10Meg	
R9	4.7Meg	½	66-5478340	BTS-4.7Meg	
R10	1Meg	½	66-5108340	BTS-1Meg	
R11	3.3Meg	½	66-5338340	BTS-3.3Meg	
R12	1Ω	½	66-9108340		
R13	430Ω	½	66-1438340	BTS-470	Note

Note. R4 and R13 used in early production, Run 50, only. In late production, Run 51, R4 and R13 are omitted and R5 and R6 are added.

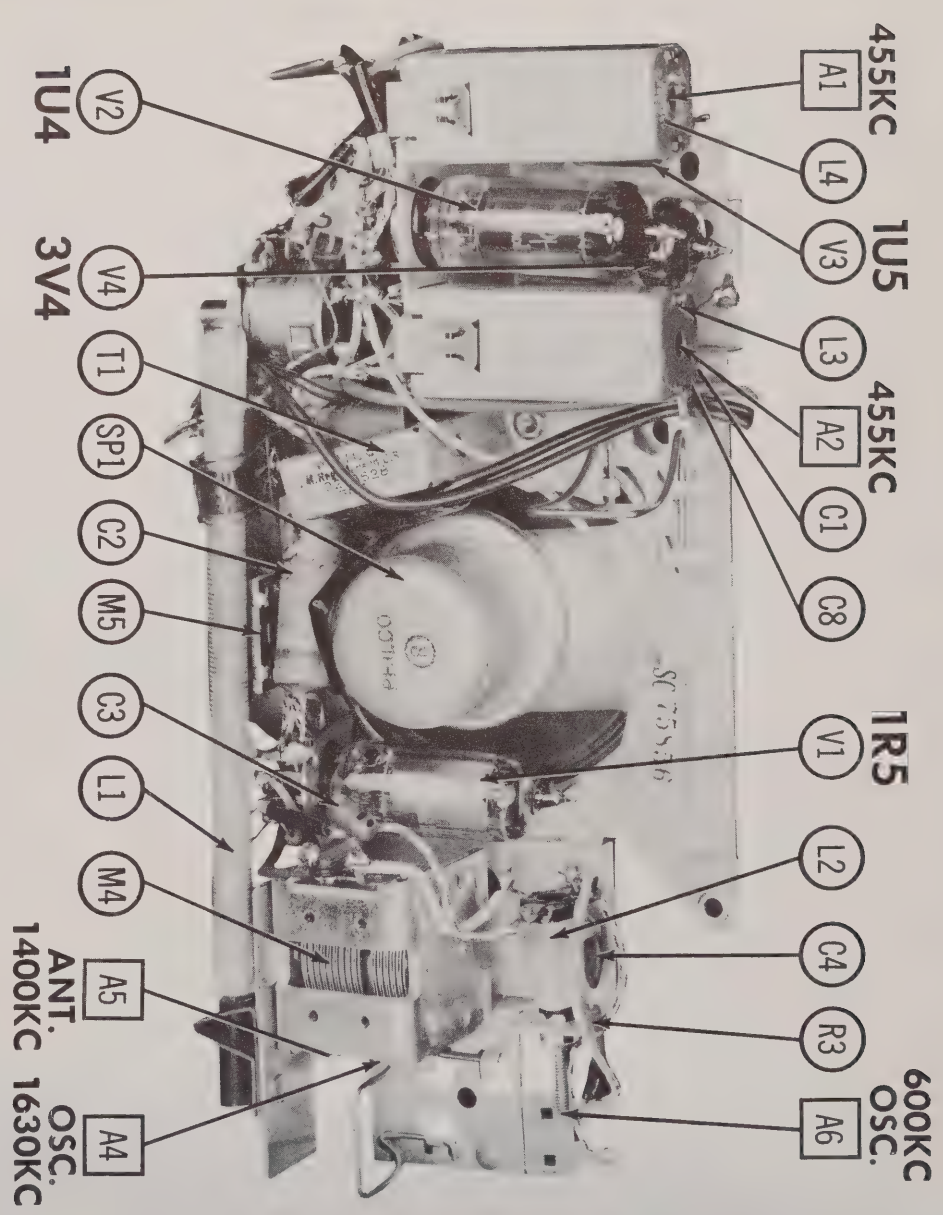
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	PHILCO PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T1	9.8KΩ	3.3Ω	32-8628		A-2927				

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	VIKING PART No.	QUAM PART No.	
SP1	3½"	PM	3.3Ω	36-1652	35J4	3A07	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	PHILCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.6Ω		32-4600-2 *				
L2	Osc. Coil	1.2Ω	5.8Ω	32-4574-2 ■	14-1074 ♦		71-OSC.	
L3	Input IF	24Ω	24Ω	32-4160-13A	16-6758	BC-352	12-C1	
L4	Output IF	34Ω	24Ω	32-4454-2A ▲	16-6754	BC-355	12-C6	

* Alternate part #32-4600.
■ Alternate part #32-4574-1.
▲ Alternate part #32-4454-3A & 32-4454-1A.
♦ Leads sufficient mounting support.

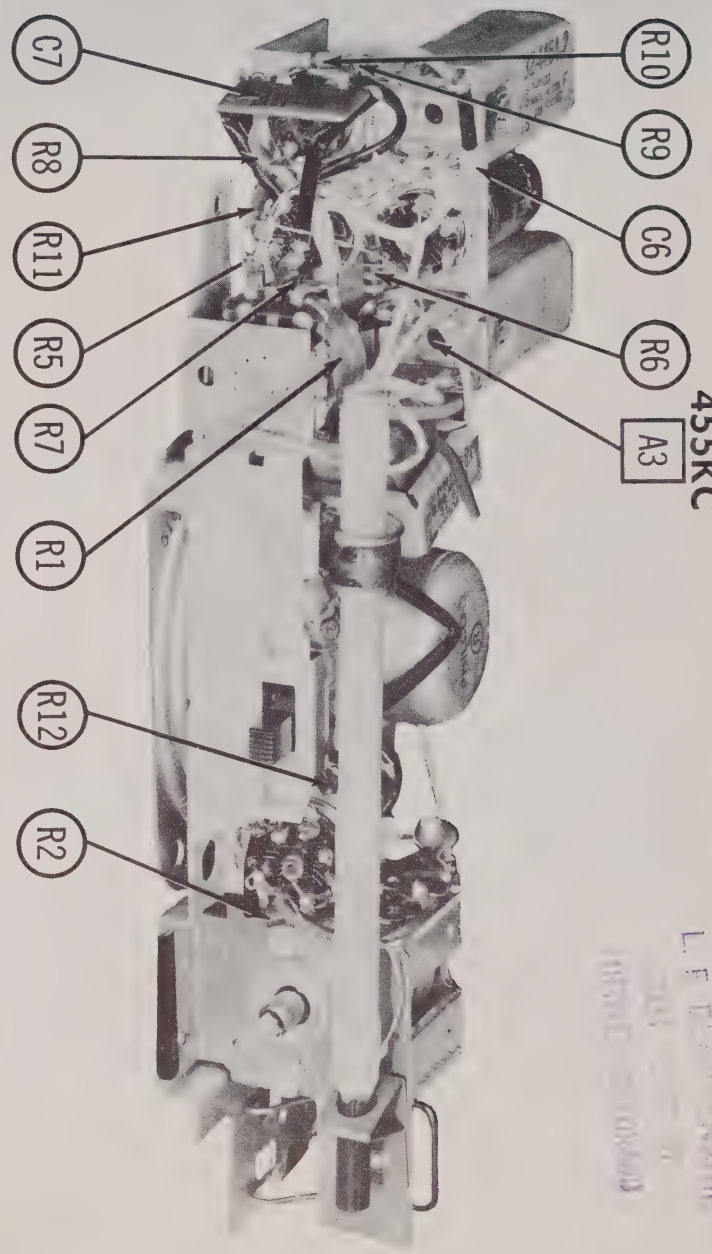
BATTERIES

ITEM No.	VOLTAGE	PHILCO PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M1	1.5V "A"	P77	964			21R			Connect two in parallel
M2	75V "B"	P144		437			XX50		

MISCELLANEOUS

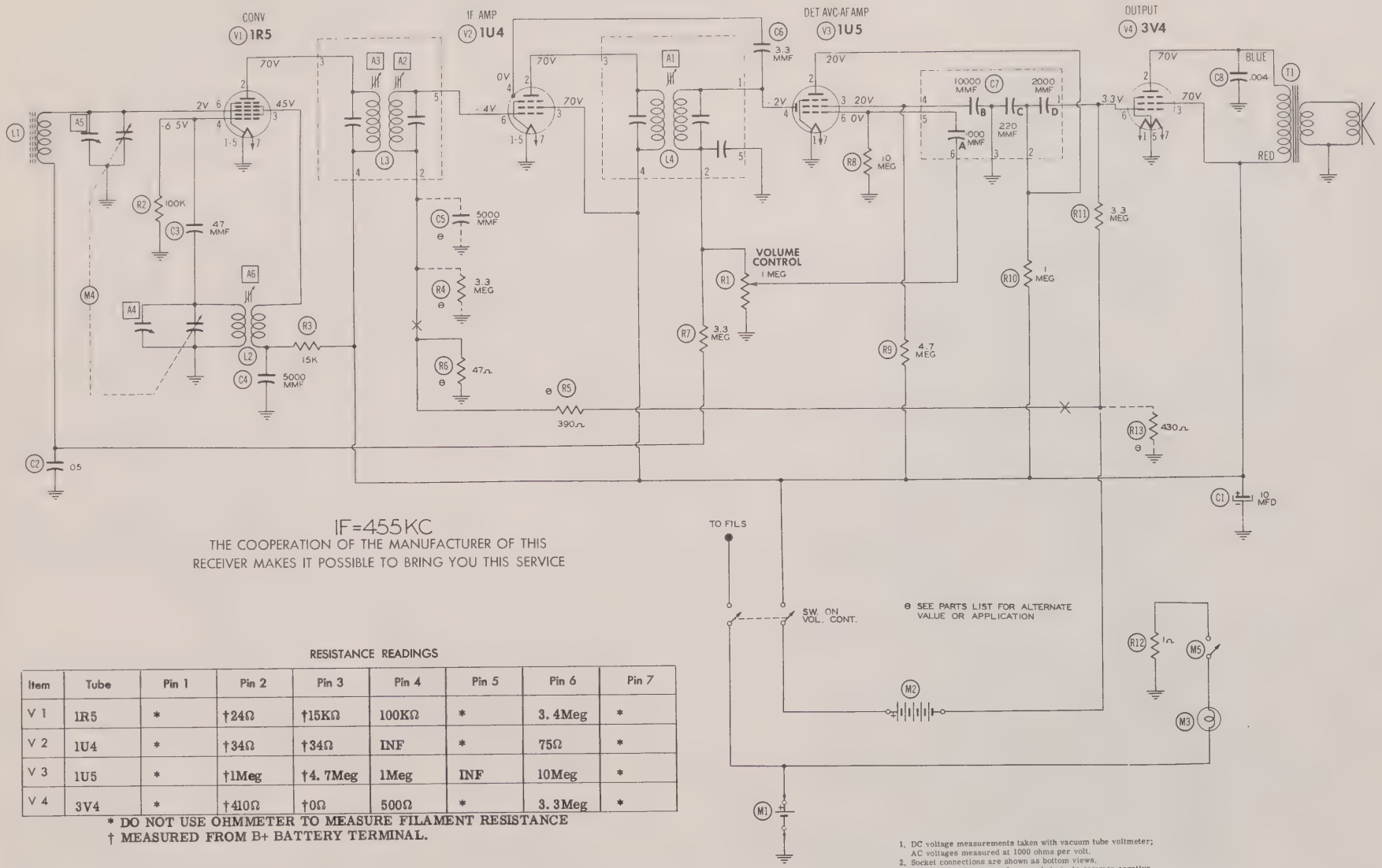
ITEM No.	PART NAME	PHILCO PART No.	NOTES
M3	Flashlight Bulb	3463-1	1.1V - Screw base
M4	Tuning Cap.	31-2772	15-240MMF, 11-110MMF
M5	Switch	42-1796-7	Flashlight
	Cabinet	11006-4	Maroon
	Cabinet Back	54-6077-4	Maroon
	Handle	54-6078-4	Maroon
	Cabinet	11006-5	Cherry
	Cabinet Back	54-6077-5	Cherry
	Handle	54-6078-3	Cherry
	Cabinet	11006-11	Forest Green
	Cabinet Back	54-6077-10	Forest Green
	Handle	54-6078-6	Forest Green
	Cabinet	11006-10	Lime
	Cabinet Back	54-6077-9	Lime
	Handle	54-6078-5	Lime
	Knob	54-6082-3	Tuning - Silver color - maroon cabinets
	Knob	54-6082-2	On-off-volume - Silver color - maroon cabinets
	Knob	54-6081-4	Flashlight switch - maroon cabinets
	Dial Scale	54-6083-1	Silver color - maroon cabinets
	Knob	54-6082-1	Tuning - gold color - all cabinets except maroon
	Knob	54-6082	On-off-volume - gold color - all cabinets except maroon
	Knob	54-6081	Flashlight -switch - ivory - all cabinets except maroon
	Dial Scale	54-6083	Gold color - all cabinets except maroon

CHASSIS—BOTTOM VIEW



PROPERTY OF
L. F. E.

PHILCO MODEL C-660 (Code 121)



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†24Ω	†15KΩ	100KΩ	*	3.4Meg	*
V 2	1U4	*	†34Ω	†34Ω	INF	*	75Ω	*
V 3	1U5	*	†1Meg	†4.7Meg	1Meg	INF	10Meg	*
V 4	3V4	*	†410Ω	†0Ω	500Ω	*	3.3Meg	*

*** DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE**
† MEASURED FROM B+ BATTERY TERMINAL.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1955

DENVER, COLORADO

PHILCO
MODEL C-663

PHILCO
MODEL C-663

TRADE NAME	Philco Model C-663
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	Three Power Portable AM Superheterodyne Receiver
TUBES (Four)	Types 1R5 Conv., 1U4 IF Amp., 1U5 Det.-AVc-AF Amp., 3V4 Output
POWER SUPPLY	110-120 Volts AC-DC (or) 3 Volts "A" Supply & 75 Volts "B" Supply
RATING	.14 Amp. @ 117 Volts AC (or) 160MA @ 3 Volts DC & 10MA @ 75 Volts DC
TUNING RANGE—BROADCAST	535KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Before aligning to set dial indicator, with tuning gang fully closed, first marking on low end of dial should be perpendicular to front of chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 6 (grid) of 1R5 (V1). Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3	Adjust for maximum output.
2.	Direct	Loop	1620KC	1620KC	"	A4	With tuning gang fully open, insert .006 shim (non-metallic) between heel of rotor and top of stator plates and close tuning gang carefully. Remove shim and adjust A4 for maximum output.
3.	"	"	1400KC	Tune to 1400KC signal	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.	"	"	600KC	Tune to 600KC signal	"	A6	Adjust for maximum output while rocking tuning gang.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

PHILCO MODEL C-663

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: PHILCO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	1R5	1R5	7AT	
V2	IF Amplifier	1U4	1U4	6AR	
V3	Det. -AVC-AF Amp.	1U5	1U5	6BW	
V4	Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲50	150	30-1285-1			D028				
B	■10	150								
C	▲40	150								
D	50	25								
C2	.05	200	30-4650-45	P288-05	DF-503	PJ2S5		PT415	2TM-S5	
C3	47			SI47	D6-470	TP29	GP1K-470	UC-5447	5GA-Q47	
C4	7.5		30-1224-83							
C5A	4000		30-1239	BPD-2X004	DD2-402	DK078	822-004	DCD-524		
B	4000									
C6	.2	200	30-4650-49	P288-2		PJ2P2		PT402	2TM-P2	
C7	5.0		30-1224-5	SI5NP0	D6-050		GP1K-05		ZT-555	
C8	1000		30-1238-3	BPD-001	DD-102	K069	811-001	DC-521	5HK-D1	
C9	10000		30-1238-2	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C10A	7000		30-1239-7	DCC-5024					5HK-2D4	Note 2
B	220									
C11	.004	600	30-4650-56	P688-004	DD-402	CUB6D4		PT624	6TM-D4	
C12	.1	400		489ZX-1	DF-104	CUB4P1		PT401	4TM-P1	Note 1

Note 1. Some versions may use a .047MFD @ 400V in this application.
Note 2. Items C10A and C10B are combined in one unit.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	33-5566-60	Q13-137	A47-1Meg-Z	B-70-S	U-53	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-2	SWE-20	Not Req.	US-27	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	NOTES
R2	68KΩ	½	66-3688340	BTS-68K	
R3	470Ω	½	66-1478340	BTS-470	
R4	15KΩ	½	66-3158340	BTS-15K	
R5	820Ω	½	66-1828340	BTS-820	
R6	3.3Meg	½	66-5338340	BTS-3.3Meg	
R7	2200Ω	½	66-228340	BTS-2200	
R8	2.2Meg	½	66-5228340	BTS-2.2Meg	
R9	4.7Meg	½	66-5478340	BTS-4.7Meg	
R10	4.7Meg	½	66-5478340	BTS-4.7Meg	
R11	680KΩ	½	66-4688340	BTS-680K	

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: PHILCO PART No.	IRC PART No.	NOTES
R12	2.2Meg	½	66-5228340	BTS-2.2Meg	
R13	1500Ω	½	66-2158340	BTS-1500	
R14	27Ω	½	66-0278340	BTS-27	
R15	470KΩ	½	66-4478340	BTS-470K	
R16	220Ω	½	66-1228340	BTS-220	
R17	2.7Ω	1	66-9274360		
R18A	1130Ω	7	33-3445-7		
B	1130Ω				
R19	1800Ω	1	66-2184340	BTA-1800	
R20	60Ω	3	33-1334-18		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: PHILCO PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T1	9KΩ	4Ω	32-8434	A-3329	A-2927 ①	S-11X		24S49	① Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: PHILCO PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	4"	PM	4Ω	36-1654-3	ST-113 Mod. P4-X	4J6	

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: PHILCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Ant. Coil	.7Ω		32-4455-13				
L2	Osc. Coil	1.5Ω	6.3Ω	32-4618				
L3	Input IF	24Ω	24Ω	32-4583-1	16-6758 *	BC-352 *	12-C1 *	
L4	Output IF	34Ω	24Ω	32-4619	16-6754 *	BC-355 *	12-C6 *	

* Terminals sufficient mounting support.

SELENIUM RECTIFIER

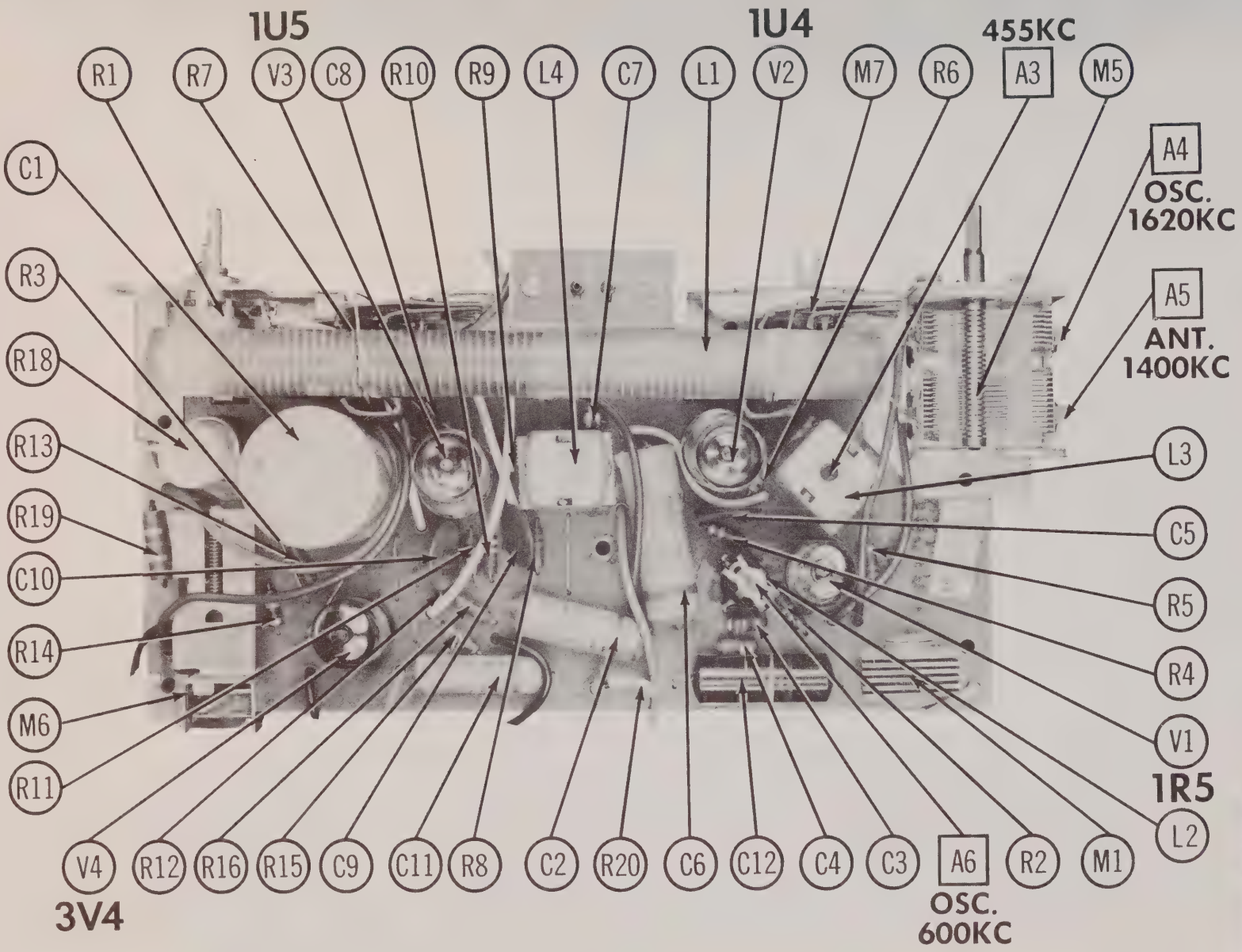
ITEM No.	RATING: CURRENT	REPLACEMENT DATA: PHILCO PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.068ADC	34-8003-18	1003A	RS75	6S100	5M1	75	

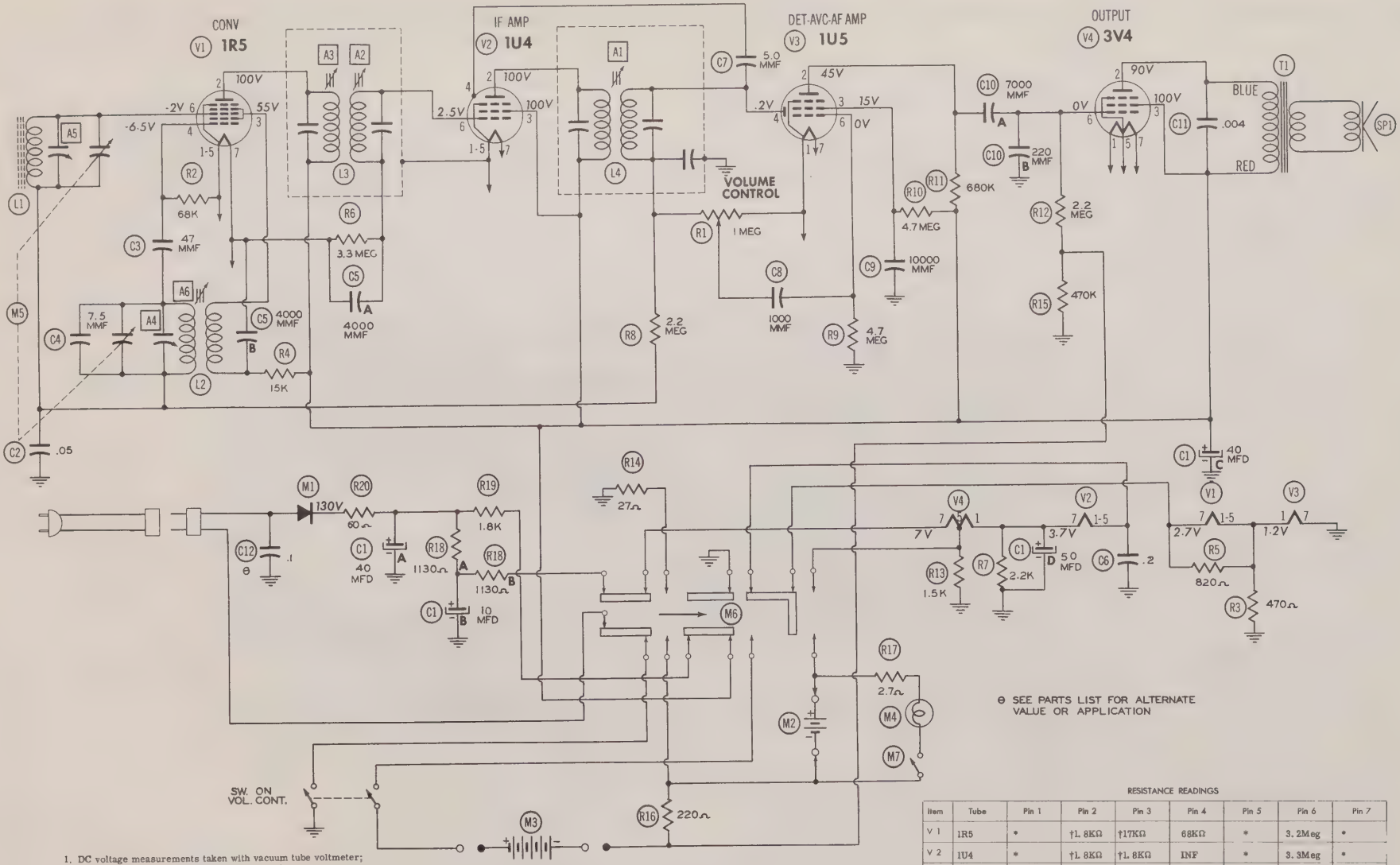
BATTERIES

ITEM No.	VOLTAGE	PHILCO PART No.	REPLACEMENT DATA: EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
M2	1.5V"A"	P-77	964			21R			Connect 2 in series
M3	75V"B"	P-144		437			XX50		

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M4	Flashlight	3463-2	Type PR-4
M5	Tuning Cap.	31-2735-6	2 Gang (22-330MMF, 12-140MMF)
M6	Switch	42-2033	Change-over
M7	Switch	42-1796-9	On-off (Flashlight)
	Cabinet	11045-1	Forest Green
	Cabinet	11045	Maroon
	Cabinet Back	54-6117-1	Forest Green
	Cabinet Back	54-6117	Maroon
	Knob	54-6121	On-off-volume
	Knob	54-6121-1	Tuning
	Knob	54-6122	Dial
	Knob	54-6126-1	Flashlight switch - Forest green
	Knob	54-6126	Flashlight switch - Maroon
	Indicator Assy.	76-9051	Flashlight


1U5
1U4
455KC
R1
R7
V3
C8
R10
R9
L4
C7
L1
V2
M7
R6
A3
M5
A4
OSC.
1620KC
A5
ANT.
1400KC
C1
R3
R18
R13
R19
C10
R14
M6
R11
L3
C5
R5
R4
V1
1R5
L2
V4
R12
R16
R15
C9
C11
R8
C2
R20
C6
C12
C4
C3
A6
R2
M1
3V4
OSC.
600KC



θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1R5	*	†1. 8KΩ	†17KΩ	68KΩ	*	3. 2Meg	*
V 2	1U4	*	†1. 8KΩ	†1. 8KΩ	INF	*	3. 3Meg	*
V 3	1U5	*	†680KΩ	†4. 7Meg	1Meg	*	4. 7Meg	*
V 4	3V4	*	†3. 1KΩ	†1. 8KΩ	INF	*	2. 2Meg	*

† MEASURED FROM OUTPUT OF SELENIUM RECTIFIER (M1)

* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

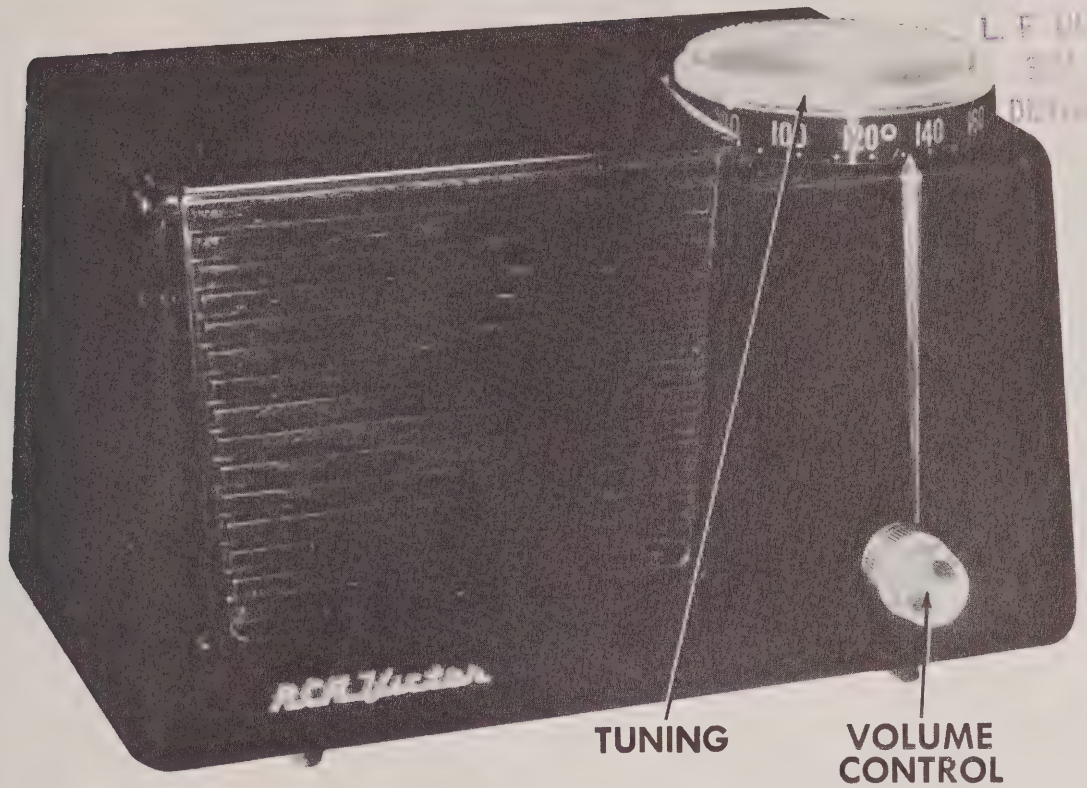
IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1955

RCA VICTOR MODELS 4-X-551, 4-X-552, 4-X-553, 4-X-554, 4-X-555 (Ch. RC-1146)



RCA VICTOR MODELS 4-X-551, 4-X-552, 4-X-553, 4-X-554, 4-X-555 (Ch. RC-1146)

TRADE NAME	RCA Victor Models 4-X-551, 4-X-552, 4-X-553, 4-X-554, 4-X-555 (Ch. RC-1146)
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corp. of America, Camden 2, N. J.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver With Phono Provisions
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC — RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 12BA6 (V2). Low side to chassis.	455KC (400~Mod)	Point of non-interference at high end of dial	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	High side to antenna stator lug. Low side to chassis.	"	"	"	A3, A4	"
3.	Direct	Loop	1620KC	Tuning gang fully open	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.	"	Loop	1400KC	Tune to 1400KC signal	"	A6	"
5.	"	"	600KC	Tune to 600KC signal	"	A7	Adjust for maximum output while rocking tuning gang.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det.-AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	50	150	76718	PRS150/50-50		BBRD-5515		TCD49	TVA-2453	
B	30	150								
C2	.05	400	73553	P488-05	DF-503	CUB4S5		PT415	4TM-S5	
C3	56		75784	SI56NP0	TCZ-56	TZ24	NP0K-560			
C4A	220									
B	5000									
C	5000		79058	PA-113-2	PC-151	116TM2	1408-02		DT-2	Note 1
D	250									
E										
C5	.015	400	73797	P488-015		CUB4S15		PT4115	4TM-S15	
C6	.047	400	75071	489ZX-047	DF-503	PJ4S47		PT4147	4TM-P1	
C7	.1	400	73551	P488-1	DF-104	CUB4P1		PT401	4TM-P1	
C8	4.7									

Note 1. Items C4A, C4B, C4C, C4D, C4E, R7A, R7B and R7C are combined in one unit. When replacing items separately items C4D and C4E should total 250MMF.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: RCA Victor PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500KΩ	½	38410	Q13-133	A47-500K-Z	B-60-S	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	Not Req.	US-26	Attach to R1A

RESISTORS

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R2	33KΩ	½	503333	BTS-33K	
R3	100Ω	½	503110	BTS-100	
R4	100Ω	½	503110	BTS-100	
R5	47KΩ	½	503347	BTS-47K	
R6	3.3Meg	½	503533	BTS-3.3Meg	

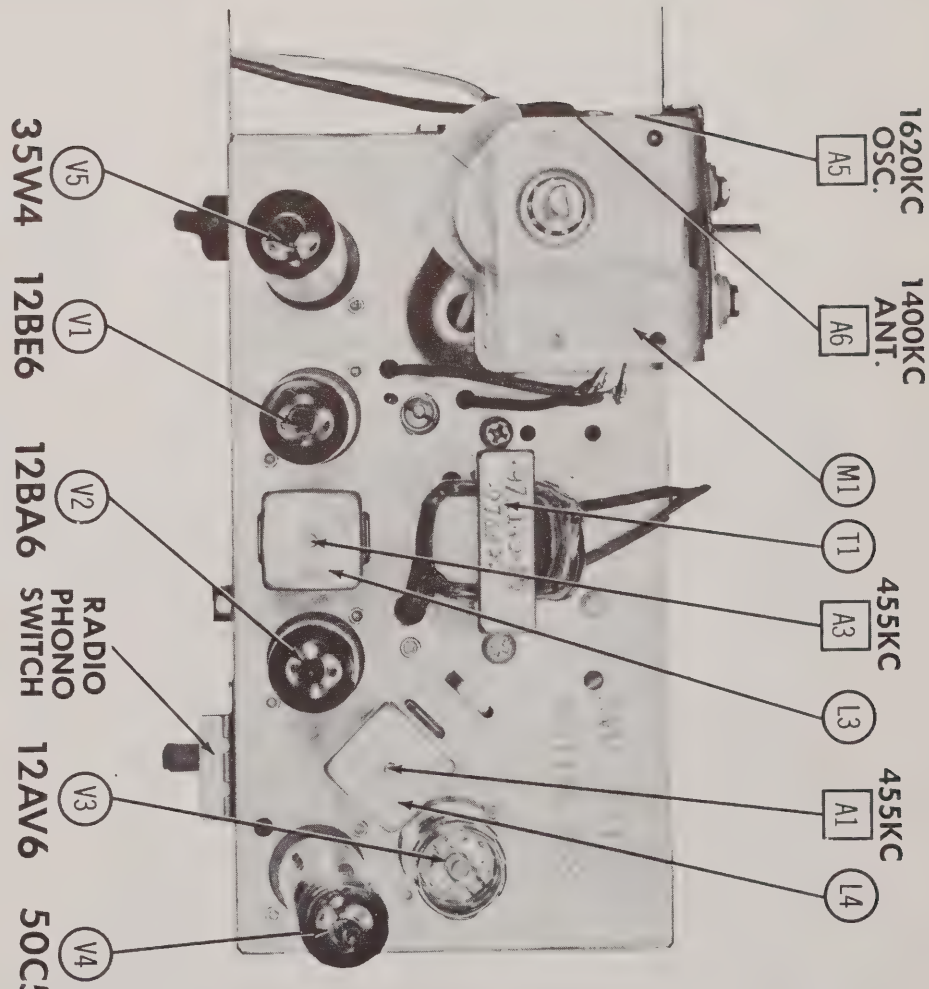
ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: RCA Victor PART No.	REPLACEMENT DATA: IRC PART No.	NOTES
R7A	6.8Meg	½		BTS-6.8Meg	
B	470KΩ	½	♦79058	BTS-470K	
C	470KΩ	½		BTS-470K	
R8	150Ω	½	502115	BTS-150	
R9	1200Ω	1	512212	BTA-1200	
R10	33Ω	1	513033		

♦ Items R7A, R7B, R7C, C4A, C4B, C4C, C4D and C4E are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: RCA Victor PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T1	2.4KΩ	3.1Ω	79283	A-3330 ①	A-3031 ①		Z1102 ①	24S50A ①	① Drill one new mounting hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.1Ω	79284	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

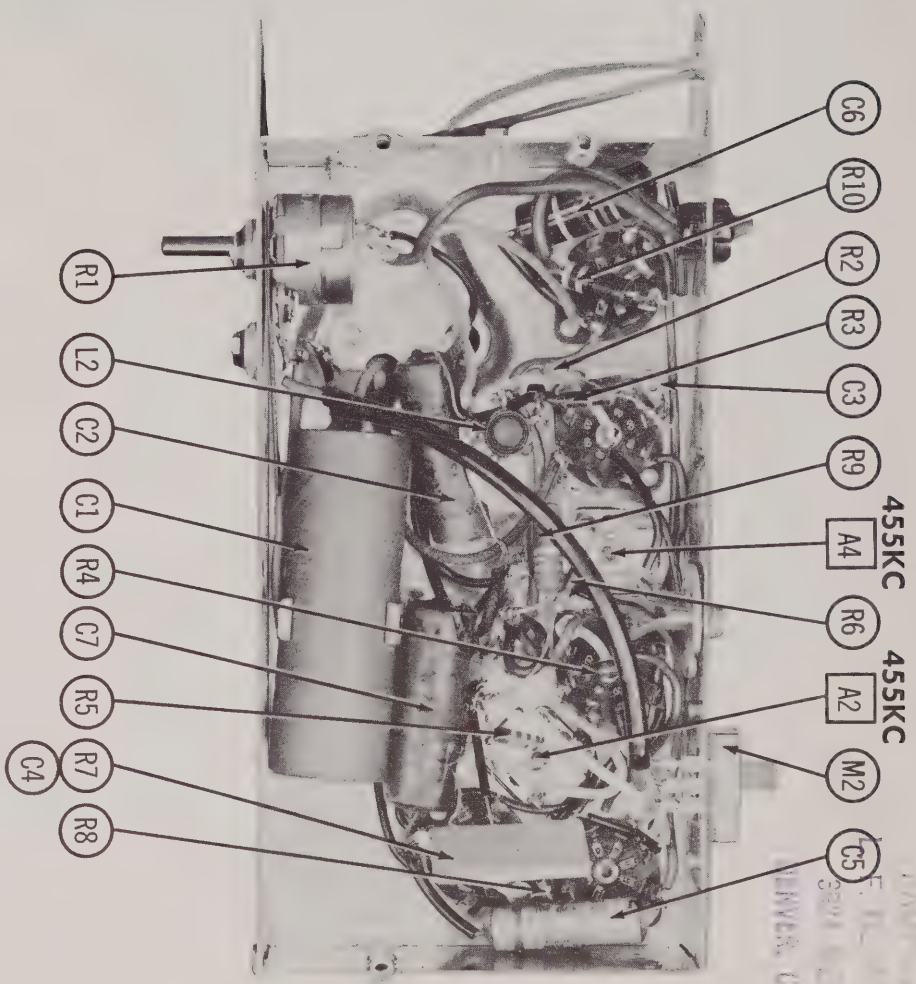
ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	RCA Victor PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	3.2Ω		79670				Includes cabinet back
L2	Osc. Coil	.7Ω	5Ω	79057	14-1074 *	BC-381 ■	71-OSC	
L3	Input IF	14Ω	14Ω	75486	16-6758	BC-352	12-C1	
L4	Output IF	14Ω	14Ω	75487	16-6770	BC-355	12-C6	

* Leads sufficient mounting support.
■ Drill mounting hole.

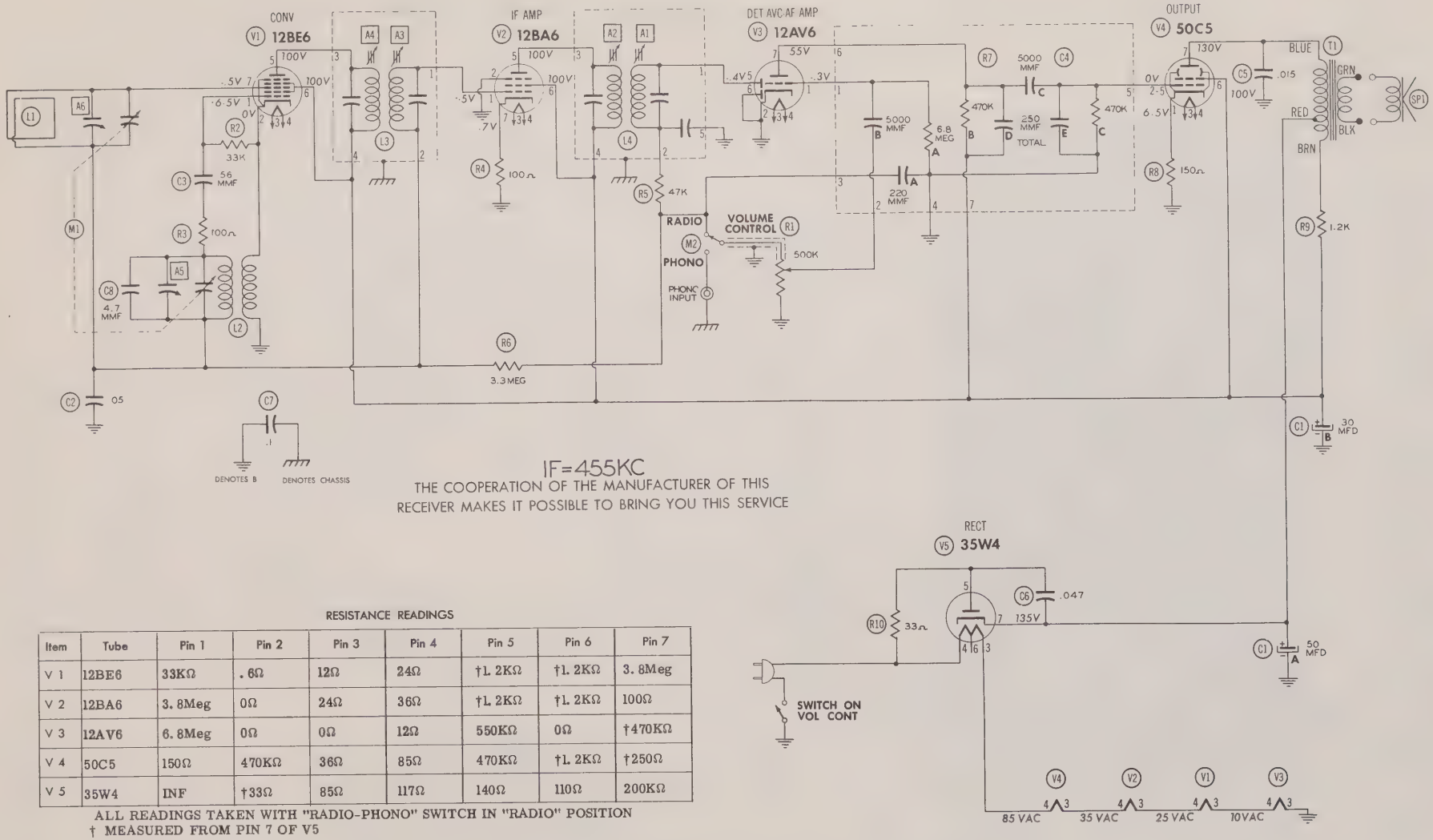
MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M1	Tuning Cap.	79290	2 Gang (23-410MMF, 18-135MMF)
M2	Switch	79256	Radio-Phono (SPDT-Slide Type)
	Cabinet	Y2695	Model 4X551
	Cabinet	Y2696	Model 4X552
	Cabinet	Y2697	Model 4X553
	Cabinet	Y2698	Model 4X554
	Cabinet	Y2699	Model 4X555
	Grille	79676	Models 4X552, 4X553, 4X554, 4X551
	Grille	79677	Model 4X555
	Knob	79671	Station Selector - Model 4X551
	Knob	79672	Station Selector - Model 4X552
	Knob	79673	Station Selector - Model 4X553
	Knob	79674	Station Selector - Model 4X554
	Knob	79675	Station Selector - Model 4X555
	Knob	79365	On-off-volume - All models
	Dial Pointer	79678	Models 4X551, 4X552, 4X553, 4X554
	Dial Pointer	79679	Model 4X555
	Name Plate	77033	RCA

CHASSIS—BOTTOM VIEW



DENVER, COLORADO



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	33KΩ	.6Ω	12Ω	24Ω	†1.2KΩ	†1.2KΩ	3.8Meg
V 2	12BA6	3.8Meg	0Ω	24Ω	36Ω	†1.2KΩ	†1.2KΩ	100Ω
V 3	12AV6	6.8Meg	0Ω	0Ω	12Ω	550KΩ	0Ω	†470KΩ
V 4	50C5	150Ω	470KΩ	36Ω	85Ω	470KΩ	†1.2KΩ	†250Ω
V 5	35W4	INF	†33Ω	85Ω	117Ω	140Ω	110Ω	200KΩ

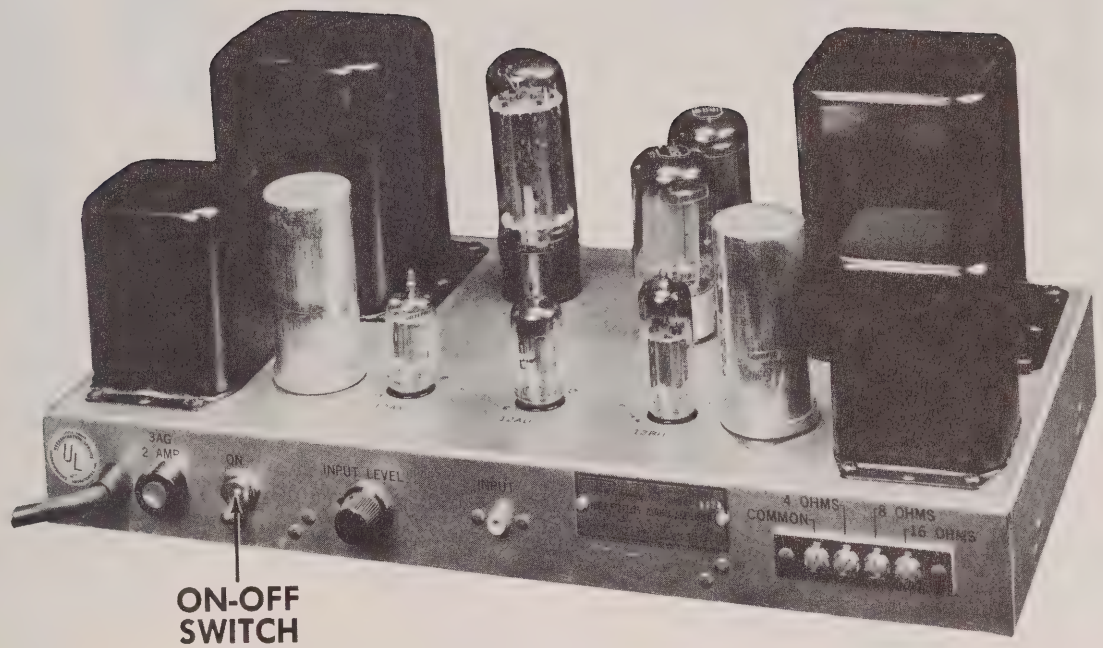
ALL READINGS TAKEN WITH "RADIO-PHONO" SWITCH IN "RADIO" POSITION
† MEASURED FROM PIN 7 OF V5

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1955

REGENCY
MODEL HF-350A



REGENCY
MODEL HF-350A

TRADE NAME	Regency Model HF-350A
MANUFACTURER	Regency Div., I.D.E.A., Inc., 7900 Pendleton Pike, Indianapolis 26, Ind.
TYPE SET	AC Operated 30 Watt Audio Amplifier
TUBES (Six)	Types 12AX7 AF Amp.-Phase Inv., 12AU7 AF Amp., 12BH7 Driver, (2) 5881 Output, 5U4GA Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING 1.34 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

REGENCY
MODEL HF-350A

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		REGENCY PART No.	STANDARD REPLACEMENT		
V1	AF Amplifier-Phase Inverter	12AX7	12AX7	9A	
V2	AF Amplifier	12AU7	12AU7	9A	
V3	Driver	12BH7	12BH7	9A	
V4	Output	5881	5881	7S	
V5	Output	5881	5881	7S	
V6	Rectifier	5U4GA	5U4GA	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	REGENCY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	▲20	450	30-011-2	AFH3-36		C027		FP376.5	TVL-3780	
B	■20	450								
C	▲20	450								
C2A	▲20	450	30-011-2	AFH3-36		C027		FP376.5	TVL-3780	
B	▲20	450								
C	▲20	450								
C3	30	150		PRS150/30		BR3015		TC47	TVA-1412	
C4	.1	600		P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C5	56	500		1468-560		5W5Q56				
C6	.02	600		P688-02	DF-203	CUB6S2		PT612	6TM-S2	
C7	.1	600		P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C8	.1	600		P688-1	DF-104	CUB6P1		PT601	6TM-P1	
C9	.02	600		P688-02	DF-203	CUB6S2		PT612	6TM-S2	
C10	.02	600		P688-02	DF-203	CUB6S2		PT612	6TM-S2	
C11	.05	600		689ZX-05	DF-503	CUB6S5		PT615	6TM-S5	
C12	.05	600		689ZX-05	DF-503	CUB6S5		PT615	6TM-S5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	REGENCY PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	100-581-3	Q13-133	A47-500K-Z	B-60	U-48	Input level
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A

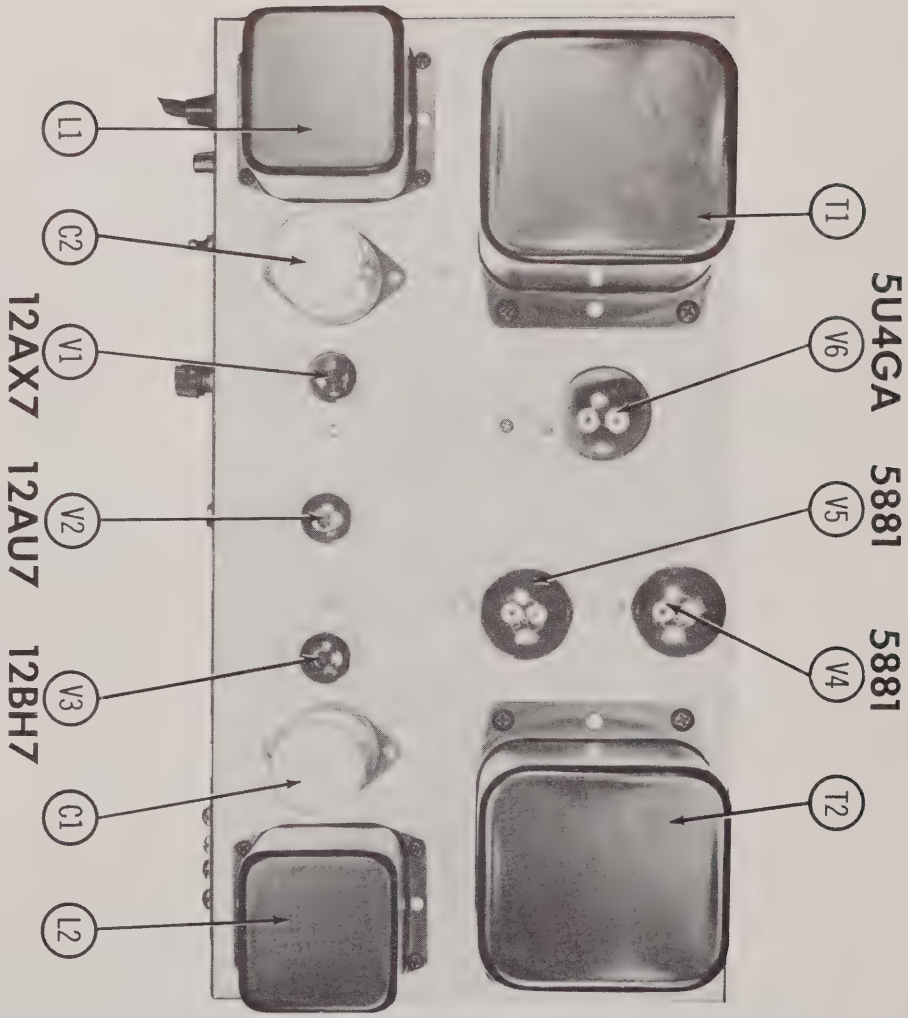
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	REGENCY PART No.	IRC PART No.	
R2	680Ω	½		BTS-680	
R3	100KΩ	1		BTA-100K	
R4	22KΩ	½		BTS-22K	
R5	33KΩ	½		BTS-33K	
R6	1Meg 5%	½		BTS-1Meg 5%	
R7	680Ω	½		BTS-680	
R8	47KΩ	½		BTS-47K	Note 1
R9	47KΩ	½		BTS-47K	Note 1
R10	1Meg 5%	½		BTS-1Meg 5%	
R11	1000Ω 5%	½		BTS-1000 5%	
R12	47KΩ	1		BTA-47K	Note 1
R13	1Meg 5%	½		BTS-1Meg 5%	
R14	47KΩ	1		BTA-47K	Note 1

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	REGENCY PART No.	IRC PART No.	
R15	470KΩ	½		BTS-470K	
R16	62KΩ 5%	½		BTS-62K 5%	Note 2
R17	47KΩ	1		BTA-47K	
R18	100KΩ 5%	½		BTS-100K 5%	
R19	470KΩ	½		BTS-470K	
R20	47KΩ	1		BTA-47K	
R21	18KΩ	1		BTA-18K	
R22	18KΩ	1		BTA-18K	
R23	4700Ω	2		BTB-4700	
R24	10KΩ	10			
R25	15KΩ	10			
R26	47Ω	½		BTS-47K	

Note 1. R8, R9 and R12, R14 are matched in pairs to 1% tolerance.
Note 2. Early versions may have used 51KΩ - change to 62KΩ.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	REGENCY PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @ 1.34A	1050VCT .190ADC tap @ 117VAC .007ADC	5VAC @ 3A	6.3VCT @ 3A	300-399					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	REGENCY PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T2	4.86KΩ CT tap @ 118ΩCT RES	16Ω tap @ 8Ω,4Ω	300-400						

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	REGENCY PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L1	.190ADC	47Ω	2.95HY	300-400-2	C-2325 ①			C5030 ①	20C54 ①
L2	.190ADC	47.5Ω	3.8 HY	300-401-1	C-2325 ①			C5030 ①	20C54 ①

① Drill new mounting holes.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	REGENCY PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.007ADC		1263A	RS50	8S20	8Y1	35	

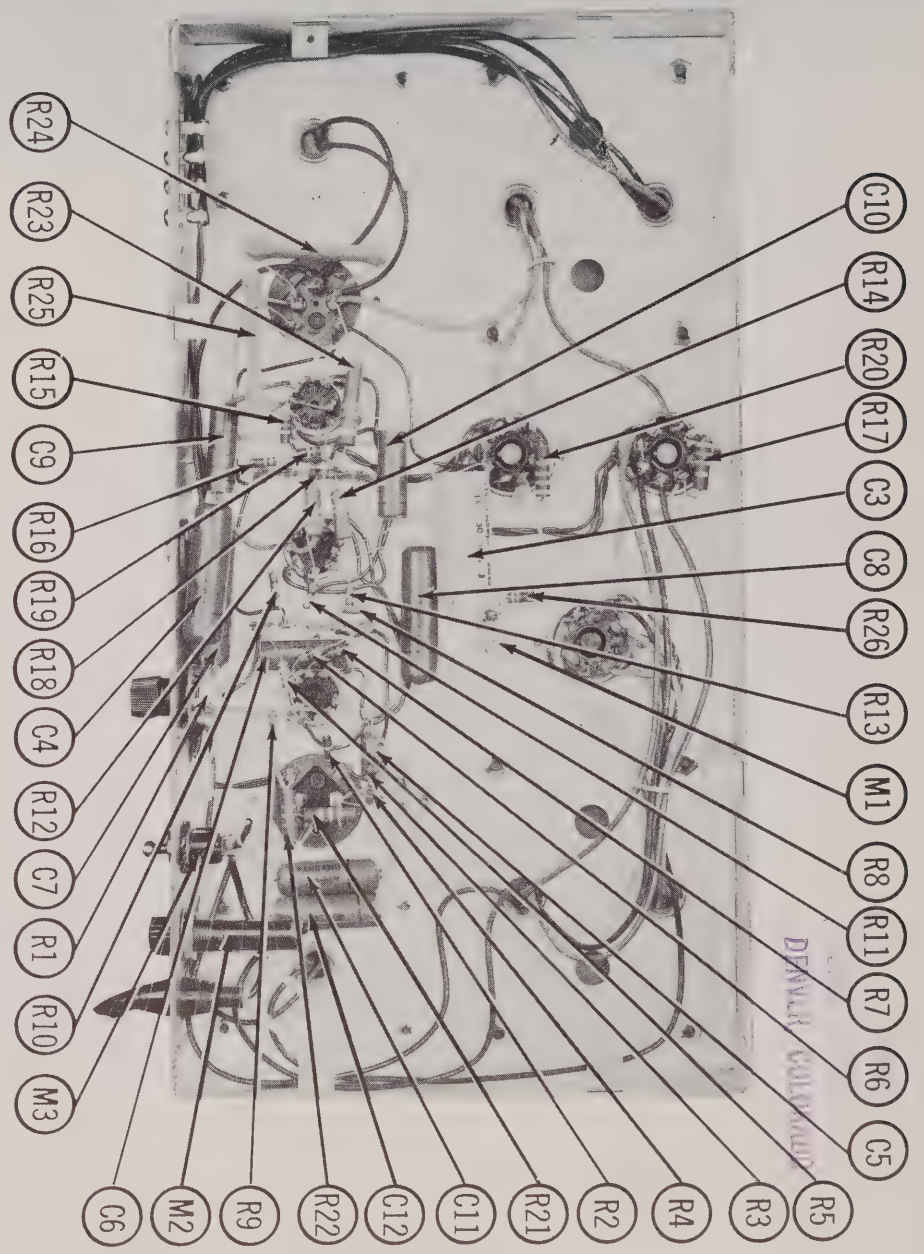
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			REGENCY PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	2A 250V			312002 (3AG-2A)	341001	AGC 2	HKP

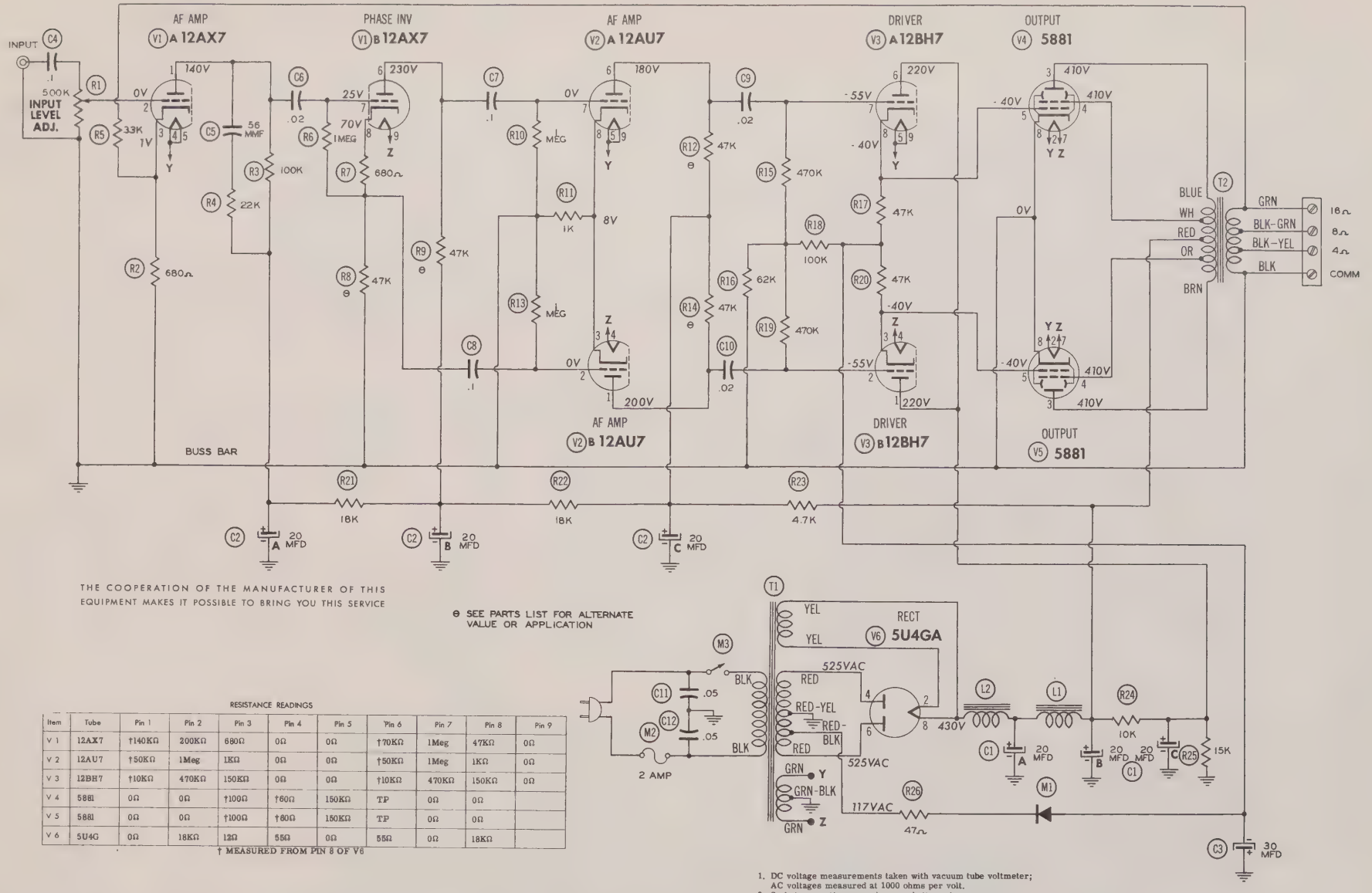
MISCELLANEOUS

ITEM No.	PART NAME	REGENCY PART No.	NOTES
M3	Switch		On-off

CHASSIS—BOTTOM VIEW



REGENCY MODEL HF-350A



THE COOPERATION OF THE MANUFACTURER OF THIS EQUIPMENT MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	12AX7	†140KΩ	200KΩ	680Ω	0Ω	0Ω	†70KΩ	1Meg	47KΩ	0Ω
V 2	12AU7	†50KΩ	1Meg	1KΩ	0Ω	0Ω	†50KΩ	1Meg	1KΩ	0Ω
V 3	12BH7	†10KΩ	470KΩ	150KΩ	0Ω	0Ω	†10KΩ	470KΩ	150KΩ	0Ω
V 4	5881	0Ω	0Ω	†100Ω	†60Ω	150KΩ	TP	0Ω	0Ω	
V 5	5881	0Ω	0Ω	†100Ω	†80Ω	150KΩ	TP	0Ω	0Ω	
V 6	5U4G	0Ω	18KΩ	12Ω	55Ω	0Ω	55Ω	0Ω	18KΩ	

† MEASURED FROM PIN 8 OF V6

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

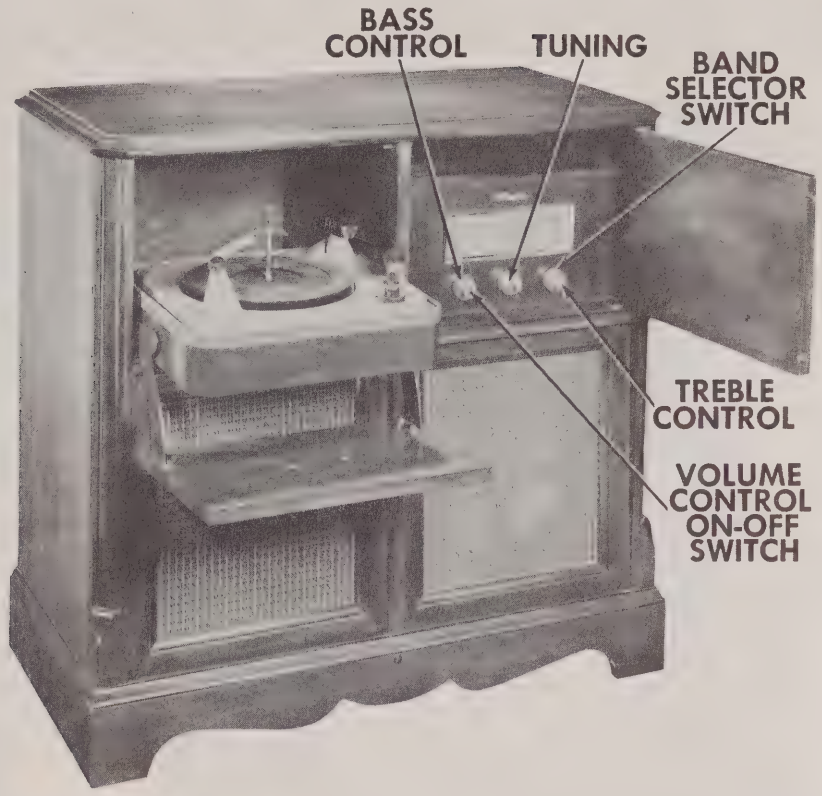
© Howard W. Sams & Co., Inc. 1955

271-11

RETMA MEMBER RADIO-ELECTRONICS-TELEVISION MANUFACTURERS ASSOCIATION

DENVER, COLORADO

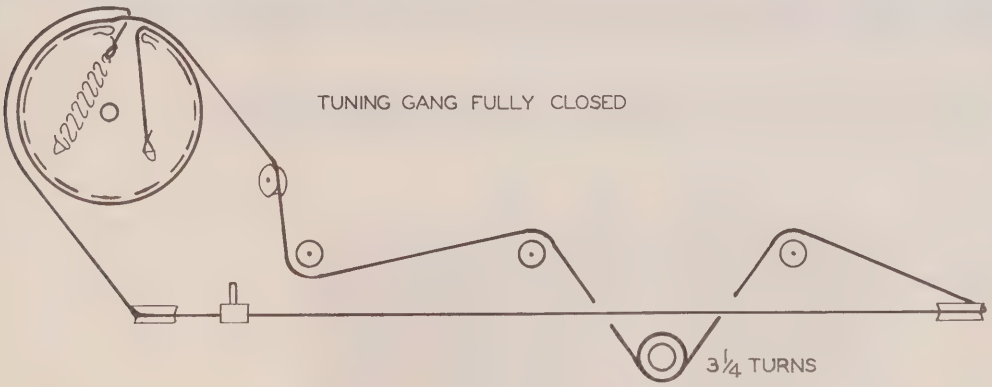
SILVERTONE
MODEL 4068A (Ch. 100.176)



SILVERTONE
MODEL 4068A (Ch. 100.176)

TRADE NAME	Silvertone Model 4068A (Ch. 100.176)	
SUPPLIER	Sears Roebuck & Co., 925 S. Homan, Chicago, Illinois	
TYPE SET	AC Operated AM-FM-Phono Combination Superheterodyne Receiver With 3 Speed Automatic Record Changer	
TUBES	Ten	
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING . 84 Amp. @ 117 Volts AC
TUNING RANGE -BROADCAST	540KC-1700KC	FREQ. MOD. 88MC-108MC

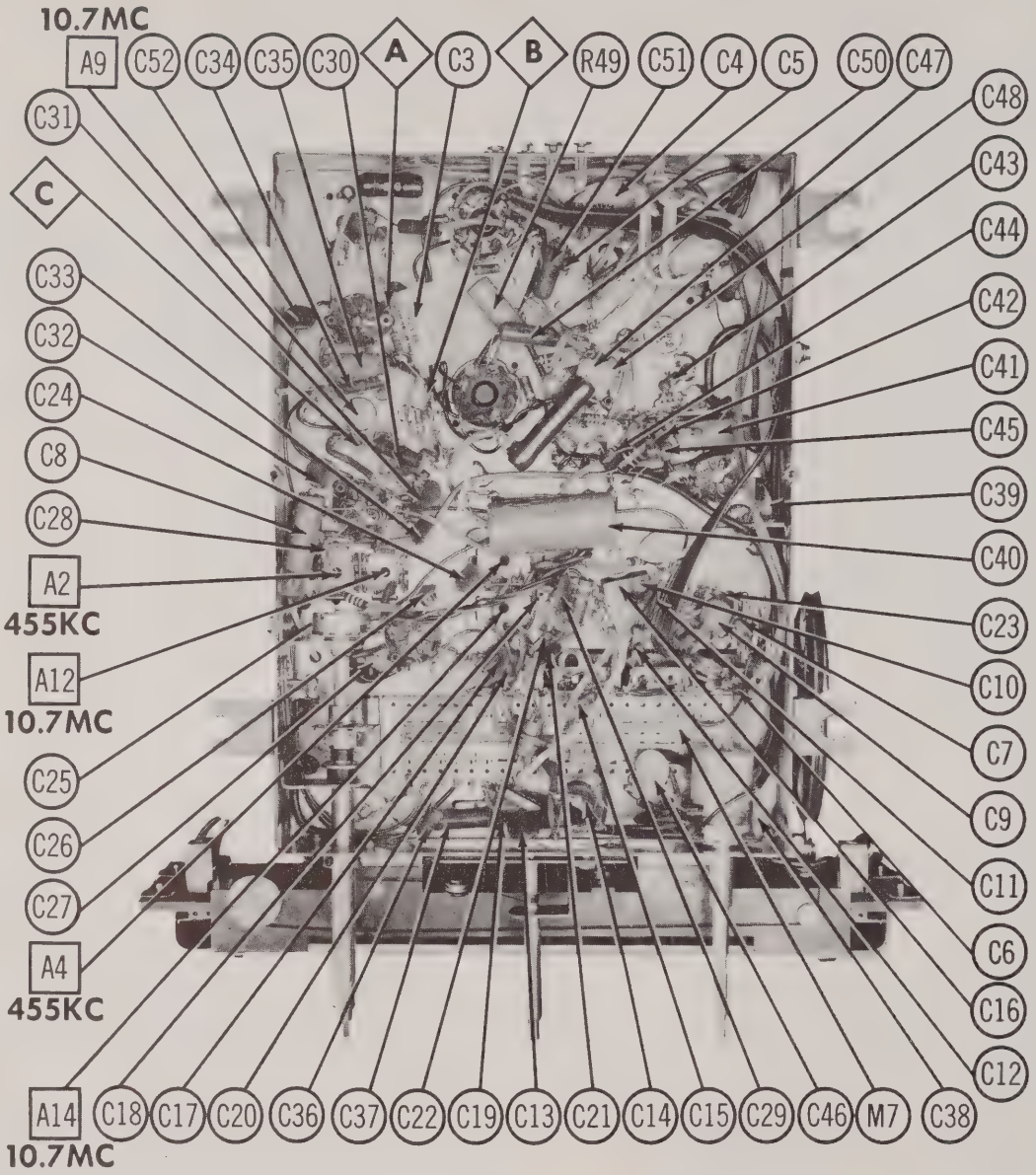
RECORD CHANGER UNIT - SILVERTONE CHASSIS MODEL 488.216-12



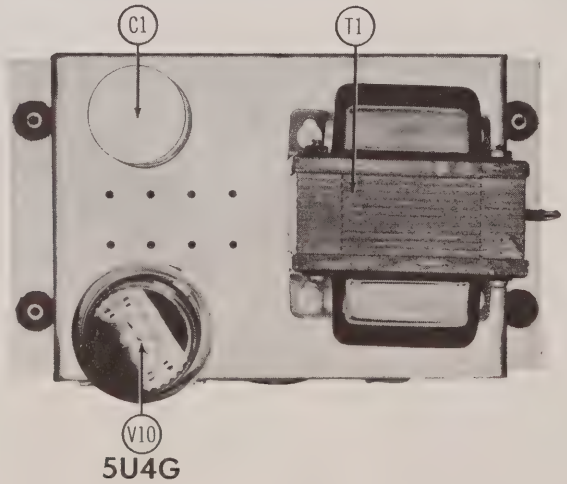
DIAL CORD STRINGING

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

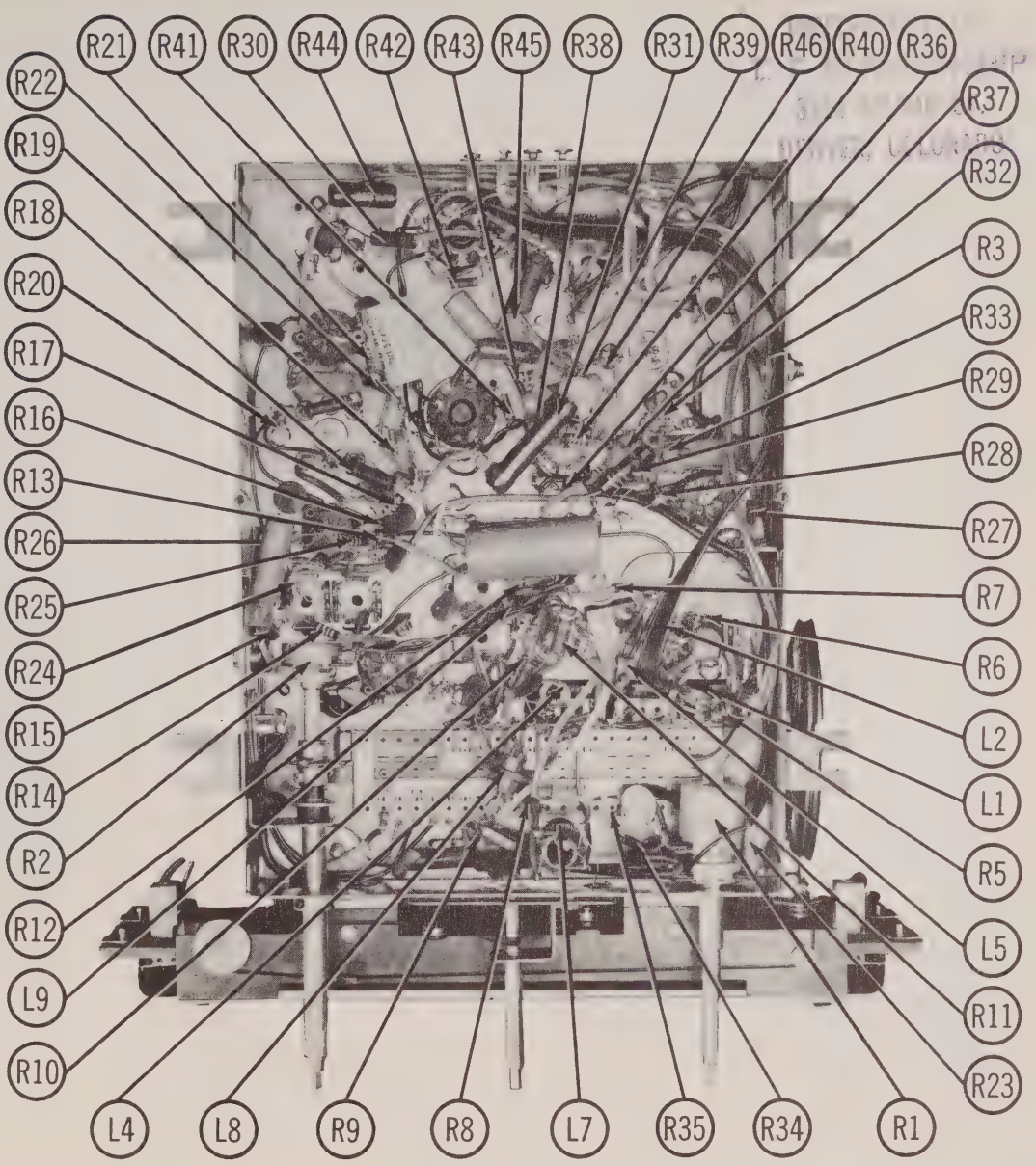
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America



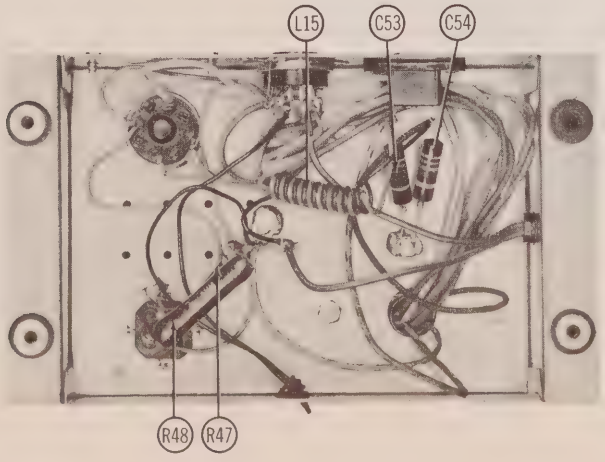
CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



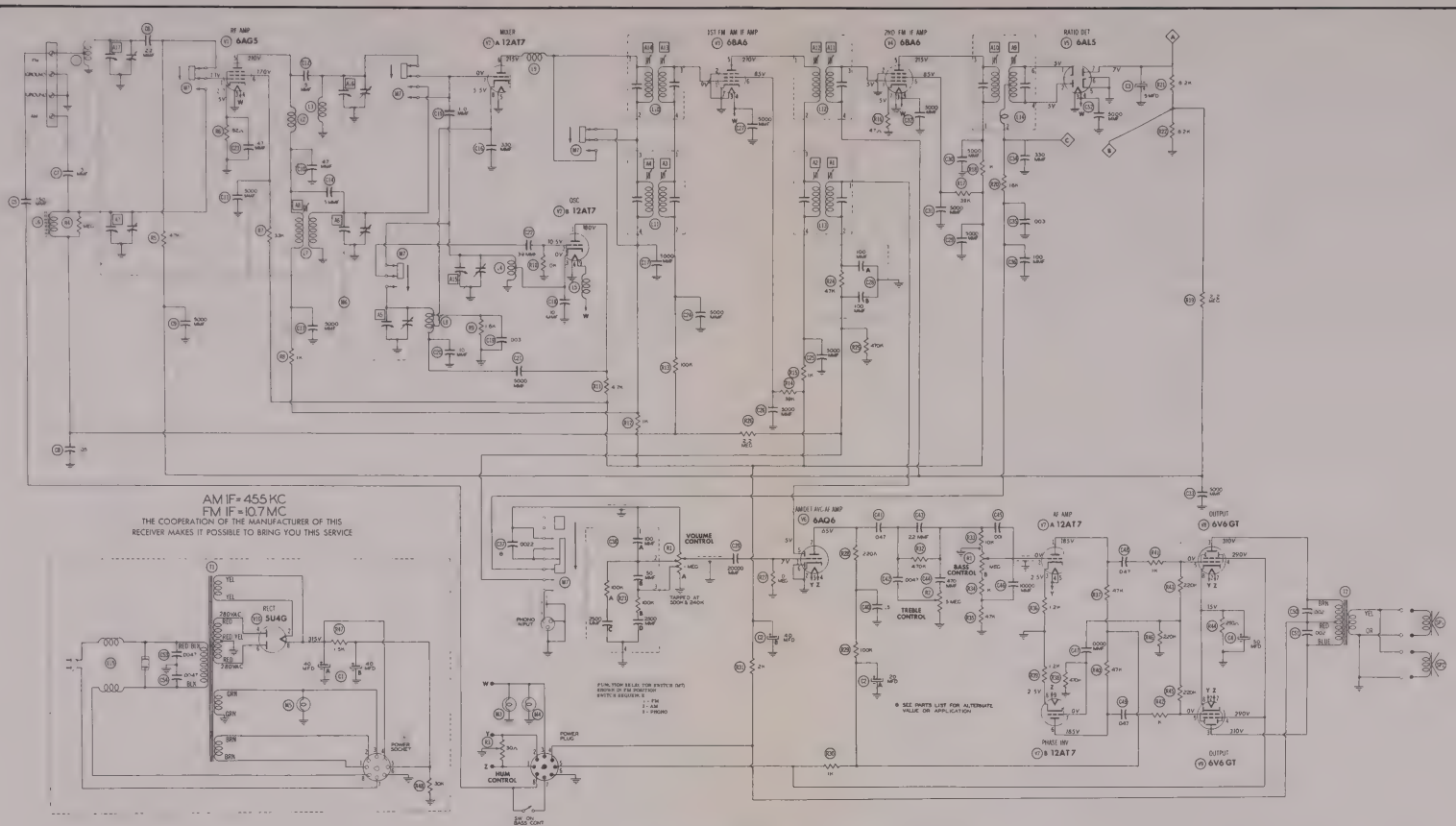
POWER SUPPLY CHASSIS-TOP VIEW



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



POWER SUPPLY CHASSIS-BOTTOM VIEW



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AG5	+2.2MEG 2.8MEG	820Ω	0Ω	0Ω	1.6Ω	+35KΩ	82Ω		
V 2	-2AT7	15.7kΩ	16KΩ	0Ω	0Ω	0Ω	+3KΩ	+8Ω 20Ω	1.8KΩ	0Ω
V 3	6BA6	2.7MEG	9Ω	0Ω	0Ω	13KΩ	+42KΩ	9Ω		
V 4	6BA6	+2.2MEG	+0Ω	+0Ω	+.5Ω	+13KΩ	+142KΩ	+47Ω		
V 5	6AL5	+2MEG	+2MEG	+0Ω	+.5Ω	+0Ω	+2MEG	+0.6MEG		
V 6	6AQ6	1.0MEG	0Ω	120Ω	120Ω	500KΩ	0Ω	+320KΩ		
V 7	-2AT7	+50KΩ	50KΩ	1.2KΩ	+2Ω	12Ω	+50KΩ	470KΩ	1.2KΩ	120Ω
V 8	6V6GT	0Ω	12Ω	518Ω	11.5KΩ	440KΩ	440KΩ	12Ω	350Ω	
V 9	6V6GT	0Ω	12Ω	518Ω	11.5KΩ	440KΩ	440KΩ	12Ω	350Ω	
V 10	5U4G	1MEG	180Ω	1MEG	1MEG	1MEG	1MEG	1MEG	1MEG	

ALL VOLTAGE AND RESISTANCE MEASUREMENTS IN "AM" POSITION UNLESS OTHERWISE NOTED.
+ TAKEN IN "FM" POSITION
1 MEASURED FROM PIN 8 OF V10

1. DC voltage measurements taken with vacuum tube voltmeter.
2. AC voltages measured to ground with 1000 ohms per volt A.C. meter.
3. Measurements are taken with no signal input.
4. Resistance - all are from socket pins to ground, unless noted otherwise.
5. Line voltage readings are at 117 volts for voltage readings.
6. Readings indicated in parentheses indicate that a signal from the receiver is applied.
7. Variation of ± 5% in tube and resistance readings may be expected in most cases; no significance should be attached to voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1953

271-12

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Disconnect all leads from antenna terminal strip.
Allow 15 minute warm-up period for receiver and equipment.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to RF stator lug (middle section of tuning gang). Low side to chassis.	455KC (400∿Mod)	AM (Middle position)	Point of non-interference	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	260MMF	High side to antenna terminal lug. Low side to chassis.	1500KC	"	1500KC	"	A5	Adjust for maximum output.
3.	"	"	"	"	Tune to 1500KC signal	"	A6, A7	"
4.	"	"	600KC	"	Tune to 1500KC signal	"	A8	Adjust for maximum output. Repeat steps 3 and 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.01MFD	High side to FM RF trimmer lug. Low side to chassis.	10.7MC (Unmod)	FM (Extreme counter clockwise)	Point of non-interference	DC probe to point (A). Common to chassis.	A9, A10, A11, A12, A13, A14	Adjust for maximum deflection.
6.	"	"	"	"	"	DC probe to point (B). Common to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.01MFD	High side to FM RF trimmer lug. Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point (A). Low side to chassis.	A9, A10, A11, A12, A13, A14	Disconnect stabilizer capacitor C2. Adjust for curve of maximum amplitude and symmetry as in Fig. 1.
6.	"	"	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A9	Reconnect capacitor C2. Adjust A9 so that 10.7MC occurs at center of crossover lines as in Fig. 2. SLIGHTLY retouch A10 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
7.	270Ω Carbon Resistor	High side to FM antenna terminal. Low side to chassis.	108MC	FM	108MC	DC probe to point (A). Common to chassis.	A15	Adjust for maximum deflection.
8.	"	"	106MC	"	Tune to 106MC signal	"	A16, A17	"
	Adjustment (if necessary) for proper tracking or to cover the FM range.							
9.	270Ω carbon Resistor	High side to FM antenna terminal. Low side to chassis.	106MC	FM	106MC	DC probe to point (A). Common to chassis.		Adjust for maximum deflection by bending FM RF rotor plates. Recheck A16 and A17.
10.	"	"	88MC	"	88MC	"	L4	Adjust L4 by compressing or expanding for maximum deflection while rocking tuning gang thru 88MC signal.

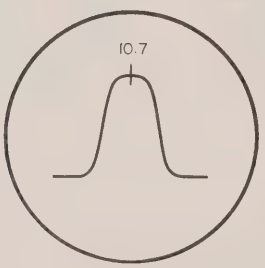


FIG. 1

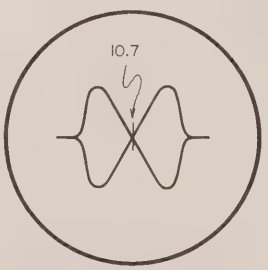


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

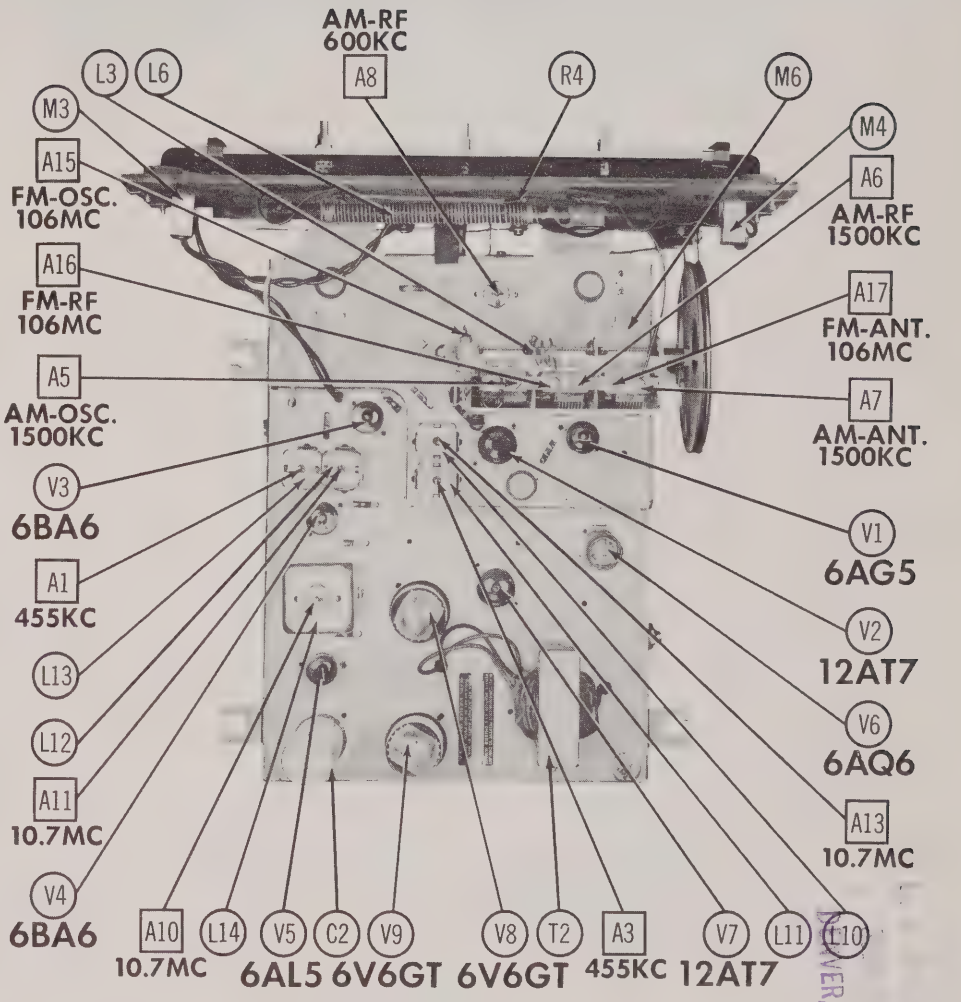
ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		SILVERTONE PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6AG5	6AG5	7BD	
V2	Osc.-Mixer	12AT7	12AT7	9A	
V3	1st. FM AM IF Amp	6BA6	6BA6	7BK	
V4	2nd. FM IF Amp.	6BA6	6BA6	7BK	
V5	Ratio Detector	6AL5	6AL5	6BT	
V6	AM Det.-AVC-AF Amplifier	6AQ6	6AQ6	7BT	
V7	AF Amplifier-Phase Inverter	12AT7	12AT7	9A	
V8	Output	6V6GT	6V6GT	7S	
V9	Output	6V6GT	6V6GT	7S	
V10	Rectifier	5U4G	5U4G	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	▬40	450	W521578	AFH2-57		B045		FP238	TVL-2764	
B	▲40	450								
C2A	■20	400	W509555			A048				
B	▲40	400				BR2045				
C3	5	50	W504937	PRS150/4		BR550		TC30	TVA-1303	
C4	50	25	W502527	PRS25/50		BR502		TC29	TVA-1206	
C5	150		W513004	SI150	D6-151	TP36	GP1K-151	UC-5315	5GA-T15	
C6	22		W513406	SI22	TCZ-22	TZ14	NP0K-220		5TCC-Q22	
C7	5		W513401	SI5NP0	TCZ-4.7	TZ07	NP0K-050	ZT-555	5TCUB-V5	
C8	.05	400	W512214	P488-05	DF-503	CUB4S5	IMP6-T5	PT415	4TM-S5	
C9	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C10	47		W513002	SI47	D6-470	TP29	GP1K-470	UC-5447	5GA-Q47	
C11	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C12	5		W513401	SI5NP0	TCZ-4.7	TZ07	NP0K-050	ZT-555	5TCUB-V5	
C13	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C14	1.5		W513033	SI1.5NP0	TCZ-1.5	TZ04	NP0K-1R5	ZT-5515	5TCCB-V15	
C15	1.0		W513000		TCZ-1	TZ03	NP0K-010		5TCCB-V1	
C16	330	500	W512541	1468-331		5W5T33				
C17	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C18	10		W513429							
C19	.003	400	W512310	P488-003	DF-303	CUB4D3	GP2L-302	PT423	4TM-D3	
C20	10		W513442							
C21	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C22	39		W513409	SI39	D6-390	TP28	GP1K-390	UC-5439	5GA-Q39	
C23	47		W513002	SI47	D6-470	TP29	GP1K-470	UC-5447	5GA-Q47	
C24	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C25	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C26	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C27	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C28A	100		♦W506338	♦PA-97-1	♦PC-50	♦111TM1	♦1403-01	UC-531	♦D-1	
B	100							UC-531		
C29	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C30	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C31	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C32	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C33	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C34	330		W513007	SI330	D6-331	TP43	GP1K-331	UC-5333	5GA-T33	
C35	.003	600	W512005	P688-003	DF-303	CUB6D3	GP2L-302	PT623	6TM-D3	
C36	100		W513003	SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C37	.0022	400	W512232	P488-0022	D6-222	CUB4D22	GP2L-222	PT4222	4TM-D22	Note 1
C38A	100									
B	50		■W522439	■PA-321						
C	2500									
D	2500									
C39	20000		W513047	BPD-02	DD-204	K082		DC-512	5GA-S2	
C40	.5	400	W512226	P488-.5		CUB4P5		PT405	4TM-P5	
C41	.047	400	W512214	P488-05	DF-503	CUB4S5		PT415	4TM-S5	
C42	.0047	600	W522309	P688-005	D6-502	CUB6D5	GP2-333-502	PT625	6TM-D5	
C43	22		W513445	SI22	D6-220	TP22	GP1K-220	UC-5422	5GA-Q22	
C44	470		W513008	SI470	D6-471	TP46	GP2K-471	UC-5247	5GA-T47	

CHASSIS—TOP VIEW



DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C45	.001	600	w512240	P688-001	D6-102	CUB6D1	GP2L-102	PT621	6TM-D1	
C46	10000		W513046	BPD-01	DD-103	K080	811-01	DC-511	5HK-S1	
C47	10000		W513046	BPD-01	DD-103	K080	811-01	DC-511	5HK-S1	
C48	.047	400	W512214	P488-05	DF-503	CUB4S5		PT415	4TM-S5	
C49	.047	400	W512214	P488-05	DF-503	CUB4S5		PT415	4TM-S5	
C50	.002	600	W512201	P688-002	D6-202	CUB6D2	GP2-333-202	PT622	6TM-D2	
C51	.002	600	W512201	P688-002	D6-202	CUB6D2	GP2-333-202	PT622	6TM-D2	
C52	5000		W513013	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C53	.0047	600	W522309	P688-005	D6-502	CUB6D5	GP2-333-502	PT625	6TM-D5	
C54	.0047	600	W522309	P688-005	D6-502	CUB6D5	GP2-333-502	PT625	6TM-D5	

♦ Items C28A, C28B and R24 are combined in one unit.
■ Items C38A, C38B, C38C, C38D, R23A, R23B and control (R1A) are combined in one unit.
Note 1. Some versions may use an .01MFD Ⓐ 400V in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	522311 ♦	*QJ-631R				Volume- tapped Ⓐ 500KΩ & 240KΩ-Panel
B	1Meg	½						Bass & Treble - Rear
R2A	5Meg	½	522322	QI3-141	A47-5Meg-Z	AB-88	U-65	Treble
B	Shaft		Not Req.	Not Req.	RS-2	AK-9	Not Req.	Attach to R2A
R3A	50Ω	1	W522318	W-50	A43-50		C50P	Hum- wire-wound
B	Shaft		Not Req.	Not Req.	FKS-1/4		Not Req.	Attach to R3A

♦ Items C38A, C38B, C38C, C38D, R23A and R23B is a printed electronic circuit that comes with the above part number.
* CONCENTRIKIT EQUIVALENT: KIT K-4, BASE ELEMENTS & SHAFTS: B18-137XX & P1-226 (Panel)
B13-137 & R1-308 (Rear)
76-1 SWITCH

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R4	1Meg	½	W510190	BTS-1Meg	
R5	47KΩ	½	W510166	BTS-47K	
R6	82Ω	½	W510117	BTS-82	
R7	33KΩ	½	W510164	BTS-33K	
R8	1000Ω	1	W510237	BTA-1000	
R9	1800Ω	½	W510141	BTS-1800	
R10	10KΩ	½	W510154	BTS-10K	
R11	4700Ω	1	W510249	BTA-4700	
R12	1000Ω	1	W510237	BTA-1000	
R13	100KΩ	½	W510173	BTS-100K	
R14	39KΩ	½	W510165	BTS-39K	
R15	1000Ω	1	W510237	BTA-1000	
R16	47Ω	½		BTS-47	
R17	39KΩ	½	W510165	BTS-39K	
R18	1000Ω	1	W510237	BTA-1000	
R19	2.2Meg	½	W510193	BTS-2.2Meg	
R20	18KΩ	½	W510159	BTS-18K	
R21	8200Ω	½	W510153	BTS-8200	
R22	8200Ω	½	W510153	BTS-8200	
R23A	100KΩ	½	♦W522439	BTS-100K	
B	100KΩ	½		BTS-100K	
R24	47KΩ	½	†W506338	BTS-47K	
R25	470KΩ	½		BTS-470K	
R26	2.2Meg	½	W510193	BTS-2.2Meg	
R27	10Meg	½	W510197	BTS-10Meg	
R28	220KΩ	½	W510179	BTS-220K	
R29	100KΩ	½	W510173	BTS-100K	
R30	1000Ω	1	W510237	BTA-1000	
R31	2000Ω	10	W510732	1 3/4A-2000	
R32	470KΩ	½	W510184	BTS-470K	
R33	10KΩ	½	W510154	BTS-10K	
R34	1000Ω	½	W510136	BTS-1000	
R35	47KΩ	½	W510166	BTS-47K	
R36	1200Ω	½	W510138	BTS-1200	
R37	47KΩ	½	W510166	BTS-47K	
R38	470KΩ	½	W510184	BTS-470K	
R39	1200Ω	½	W510138	BTS-1200	
R40	47KΩ	½	W510166	BTS-47K	
R41	1000Ω	½	W510136	BTS-1000	
R42	1000Ω	½	W510136	BTS-1000	
R43	220KΩ	½	W510178	BTS-220K	
R44	250Ω 5%	5	W510791	1 3/4A-250 5%	
R45	220KΩ	½	W510178	BTS-220K	
R46	220KΩ	½	W510178	BTS-220K	
R47	1500Ω	1	W510239	BTA-1500	
R48	30KΩ	10	W510790		

♦ Items R23A, R23B, C38A, C38B, C38C, C38D and control (R1A) are combined in one unit.
† Items R24, C28A, C28B are combined in one unit.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA SILVERTONE PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC Ⓐ .84A	570VCT .132ADC	5VAC Ⓐ 3A	6.3VAC Ⓐ 1.38A SEC. 4 6.3VAC Ⓐ 1.96A	522306					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA SILVERTONE PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T2	9.8KΩ	3.2Ω	522303	A-3830	A-2936 ①	S-15X ①	Z1011	24S61 ①	① Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V. C. IMP.	REPLACEMENT DATA SILVERTONE PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	10"	PM	6.2Ω	522256		10A10	
SP2	10"	PM	6.4Ω	522255		10A31Z6.4	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Coil	0Ω		W506353				Tapped
L2	RF Choke	3Ω		W507935	19-1003		4608	3.3 Microhenries, IRC part #CLA
L3	FM RF Coil	0Ω		W506351				
L4	FM Osc. Coil	0Ω		W506352				Tapped
L5	Fil. Choke	.8Ω		W507586	19-1000		4602	1 Microhenry IRC part #CLA
L6	AM Ant. Coil	.6Ω		W522283				
L7	AM RF Coil	77Ω	4.6Ω	W521157	14-1057 *	BC-382 ♦	72-RF *	Slug core #W506344
L8	AM Osc. Coil	9Ω		W506335				Tapped Ⓐ 6.5Ω & 7Ω
L9	Parasitic Suppressor	0Ω						3 turns in inter-connecting plate lead
L10	1st. FM IF	.6Ω	.6Ω	W506080	16-3487	FM-254	1463	
L11	1st. AM IF	9.5Ω	9.5Ω	W506333	16-6758	BC-352	12-C1	
L12	2nd FM IF	.5Ω	1.9Ω	W505905	16-3487	FM-254	1463	
L13	2nd AM IF	12Ω	12Ω	W505797	16-6758	BC-353	12-C2	
L14	Ratio Det.	.8Ω	.1Ω	W506332	17-3487	FM-252 ▲	1498	Slug core part #W508841 Tertiary Winding = .1Ω
L15	Line Choke	0Ω	0Ω	W521153				

* Drill mounting hole and add capacitor between primary and secondary.
♦ Drill mounting hole.
▲ Cut out chassis hole and drill mounting holes.

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA SILVERTONE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1	K5799	55-T	GDJ			47	0-1 or S-1 & 0-3	

ASTATIC AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA SILVERTONE PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	REMARKS
M2	K6280	†S-66 or ♦†S-66SD	†AC-434 or ♦†AC-434D1 or †♦AC-434D2 or ♦AC-434D	†W-75TPS or ♦†W-75DS or ♦W-75TPD	†Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M3	Dial Light	W118921	#47, Bayonet
M4	Dial Light	W118921	#47, Bayonet
M5	Pilot Light	W118921	on-off indicator
M6	Tuning Cap.	W522070	17-375MMF, 17-360MMF, 19-185MMF
M7	Switch	W522317	FM-AM-Phono
M8	Switch	K467	On-off (Record changer)
M9	Switch	K481l	Muting
M10	Phono Motor	K2987-50	Includes switch assy.
A15	Trimmer Cap.	W506336	FM Osc. Trimmer (3-30MMF)
	Cabinet	W522725	
	Knob	W522295	"Bass" on-off
	Knob	W522299	Phono -AM-FM
	Knob	W522296	"Treble"
	Knob	W522298	Tuning (back section)
	Knob	W522297	Volume
	Knob	W522057	Tuning (front section)
	Knob	K2907W	Reject
	Knob	K3284W	Speed Control
	Dial Background	W522065	
	Dial Scale	W522399	
	Dial Pointer	W522104	

PHOTOFACT* Folder

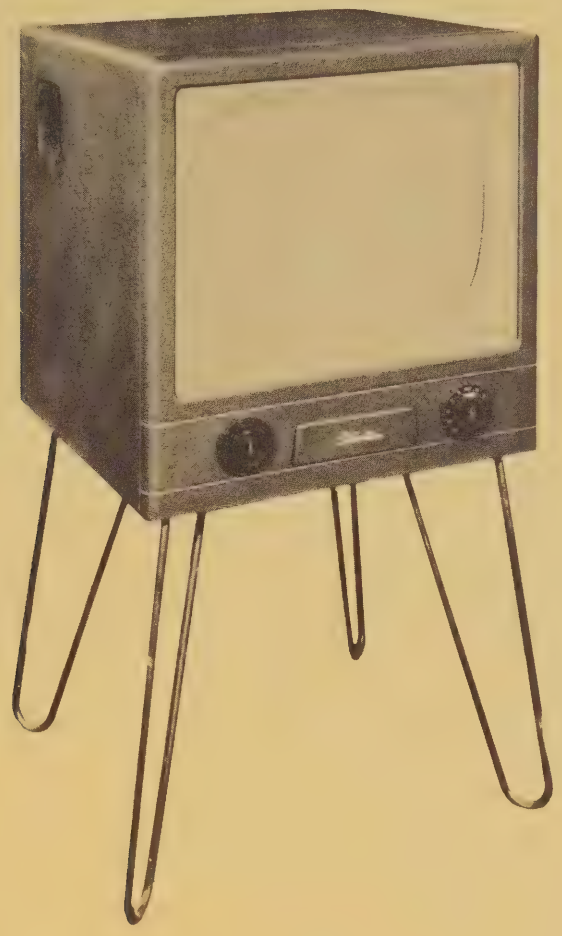
SILVERTONE MODELS 4110B, 4112B, 5111B, 5113B (Ch. 132.08400, 132.08500)

L. F
3924 M[illegible] S.
DENVER, COLORADO

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL 4112B

SILVERTONE MODELS 4110B, 4112B, 5111B, 5113B (Ch. 132.08400, 132.08500)

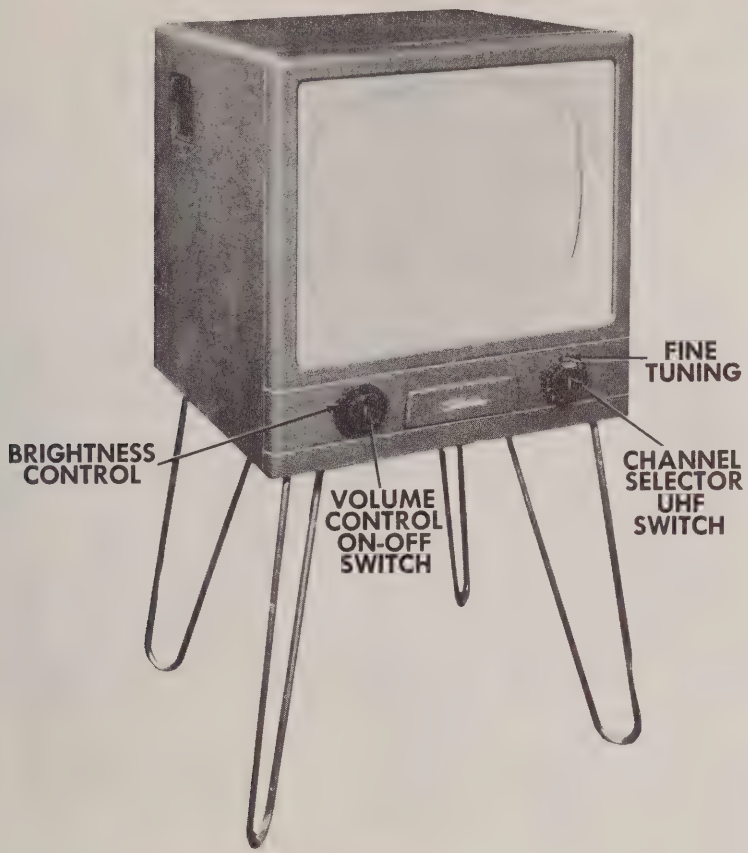
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

DATE 3–55 SET 271 FOLDER 13

SILVERTONE MODELS 4110B, 4112B, 5111B, 5113B (Ch. 132.08400, 132.08500)

PROPERTY OF
L. F. BLANKENSHIP
3804 MEADE ST.
DENVER, COLORADO



SILVERTONE MODEL 4112B

TRADE NAME	Silvertone	MODELS	CHASSIS
		4110B, 5111B	132.08400 (VHF only)
		4112B, 5113B	132.08500 (VHF-UHF)
SUPPLIER	Sears Roebuck & Co., 925 S. Homan Ave., Chicago, Ill.		
TYPE SET	Television Receiver		
TUBES	Twenty-one		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING 1.84 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

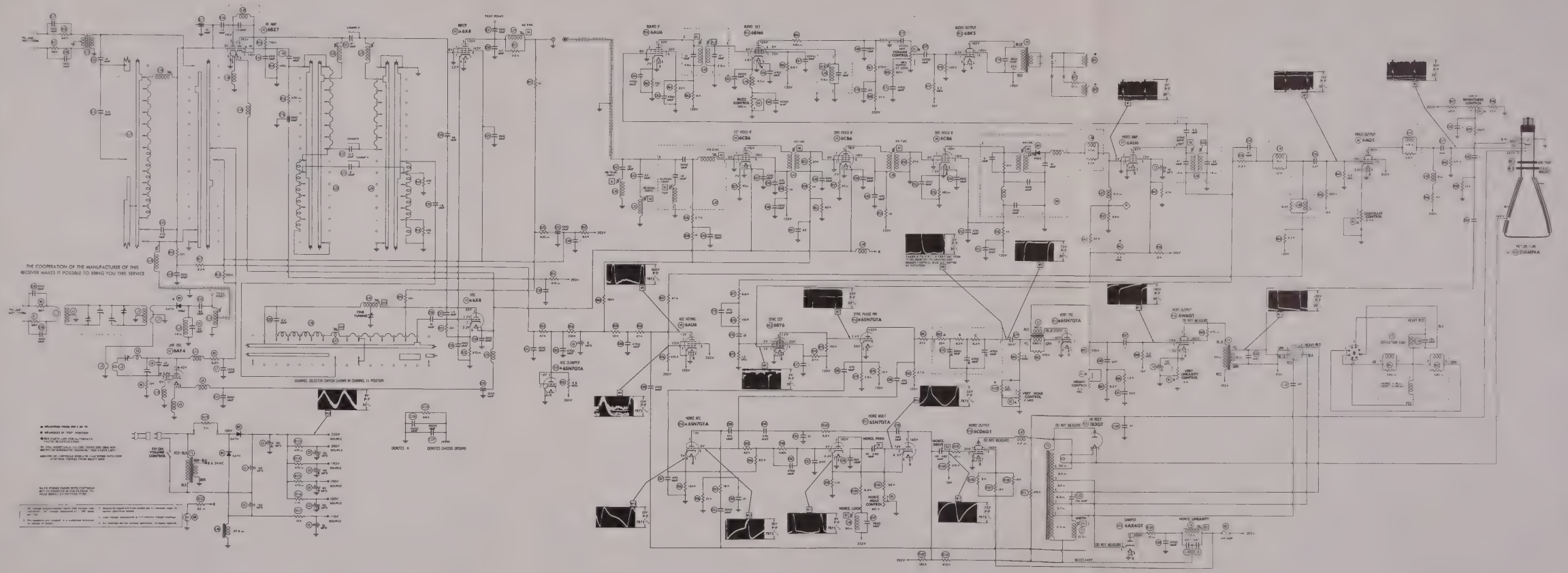
INDEX

Alignment Instructions 6, 7
Drive Cord Stringing (UHF) 7
Disassembly Instructions 18
Horizontal Sweep Circuit Adjustments 11
Parts List and Descriptions ..... 13 thru 16
Photographs
Cabinet-Rear View 11
Capacitor Identification 4, 9
Chassis-Top View 3
RF Tuner 10, 16
Photographs (Cont)
Resistor Identification 19, 20
Trans., Inductor & Alignment Identification 17
Resistance Measurements 8
Servicing in the Field 18
Schematic 2
Trouble Shooting Aids 12, 17
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube Placement Chart (Top View) 5

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

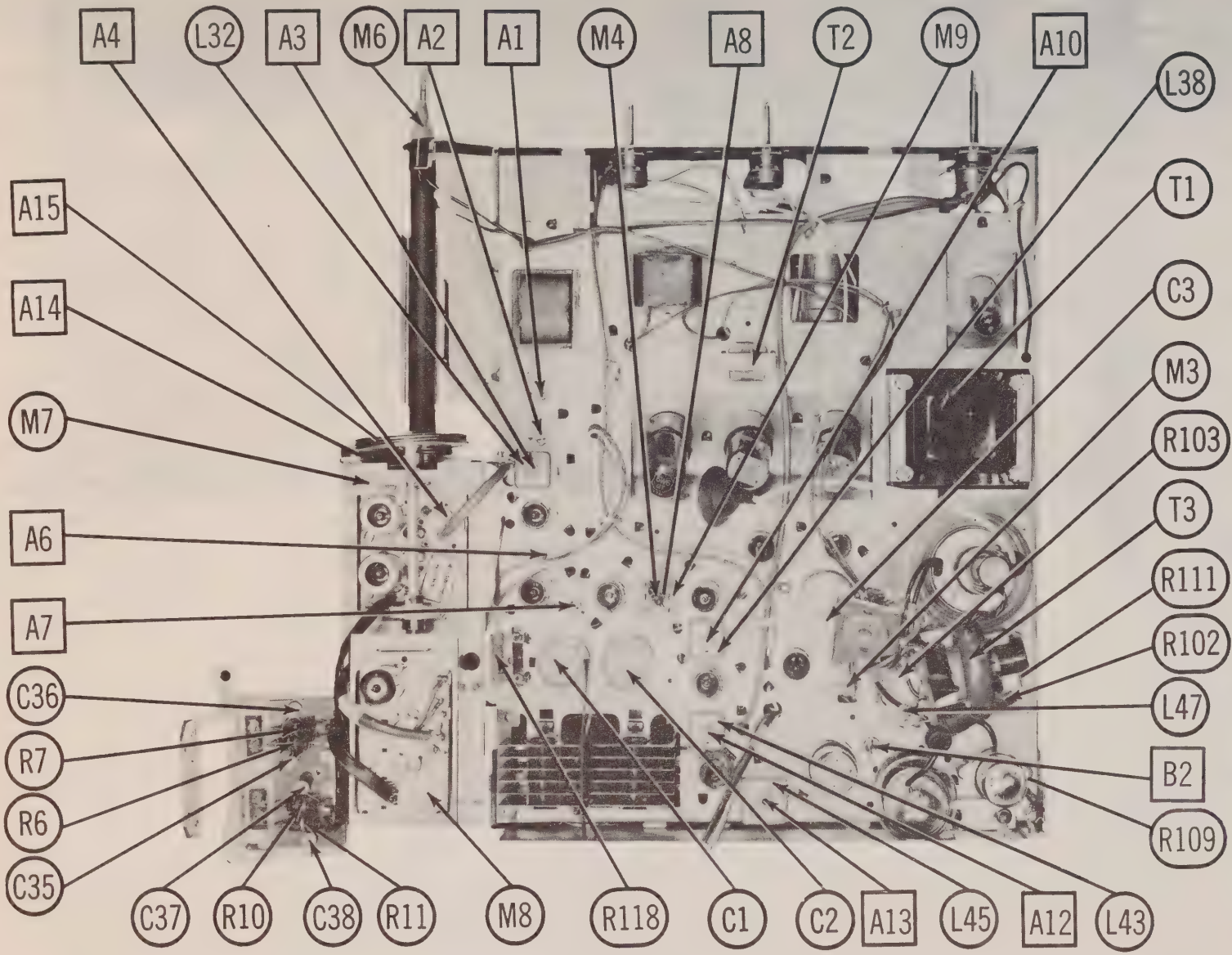
"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

SILVERTONE MODELS 4110B, 4112B, 5111B, 5113B (Ch. 132.08400, 132.08500)


THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
DENOTES ⊕
DENOTES CHASSIS GROUND
A PHOTOFACT STANDARD NOTATION SCHEMATIC

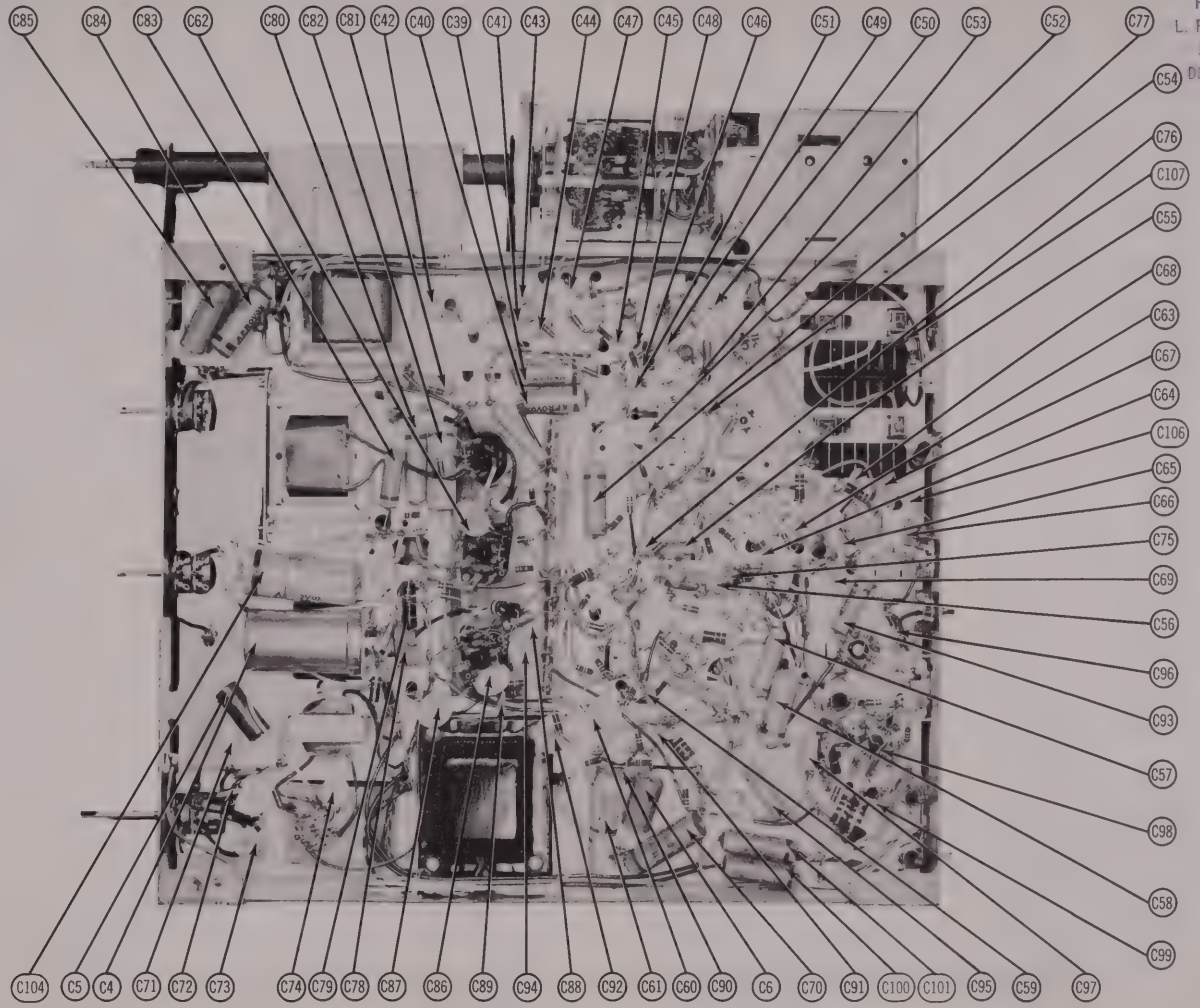
SILVERTONE MODELS 41108, 4112B, 5111B, 5113B (Ch. 132.08400, 132.08500)

SILVERTONE MODELS 41108, 4112B, 5111B, 5113B (Ch. 132.08400, 132.08500)



CHASSIS TOP VIEW

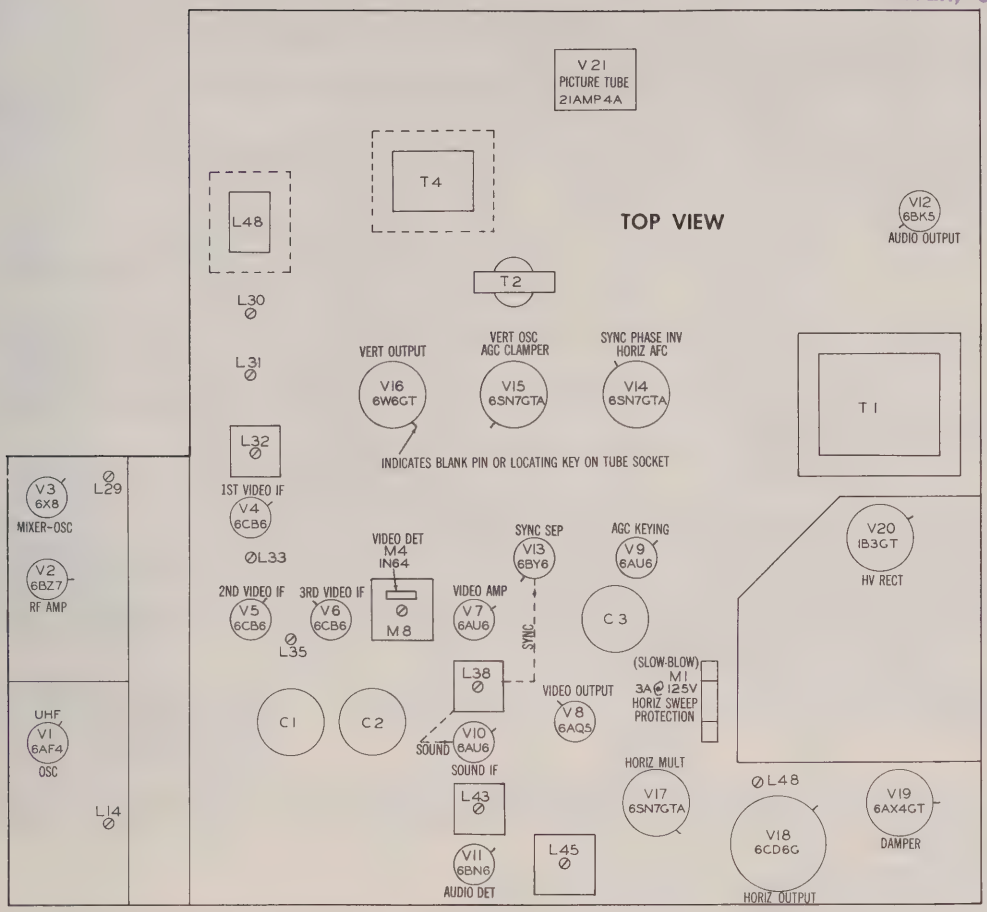
PROPERTY OF
L. F. BLANKENSH
3[illegible] ST
DEN[illegible]



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

PROPERTY
L. F. BLANK
DENVER, COLORADO

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Selenium Rectifiers (M1 & M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, V6, V7 (V1 UHF only)**
No pic, no sound, has snow - **V2, V3, V4**
No pic, has sound, has raster - **V8, V9, V21**
Has pic, no sound - **V10, V11, V12**
Overloaded picture - **V9, V15**

SYNC FAILURE
No vert. sync - **V14, V15**
No horiz. sync - **V14, V17**
No vert. or horiz. sync - **V13, V14**

SWEEP FAILURE
No raster, has sound - **V17, V18, V19, V20, V21, Fuse (M3)**
No vertical deflection - **V15, V16**
Poor vert. linearity or foldover - **V15, V16**
Poor horiz. linearity or foldover - **V17, V18, V19**
Narrow picture - **V17, V18, V19, V20, M1, M2**
Vert. off freq. - **V14, V15**
Horiz. off freq. - **V14, V17**

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal multivibrator tube (V17) to disable the high voltage.

VIDEO IF ALIGNMENT

Remove the AGC keyer tube (V9) from its socket. Connect a 1000Ω potentiometer across a 4.5 volt battery. Connect the potentiometer arm to the ungrounded side of C61. Connect the positive side to chassis. Adjust the potentiometer arm for -2.5 volts at C61.
Attenuate the generator output to maintain not more than 2 volts at VTVM.
To adjust for outer peak (see remarks) turn the core fully counter clockwise then clockwise until the first peak occurs.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	39.75MC	9, 10 or 11	DC probe thru 18KΩ to point (A). Common to chassis.	A1	Adjust for MINIMUM deflection.
2	"	"	47.25MC	"	"	A2	Adjust for MINUMUM deflection on outer peak.
3	"	"	41.25MC	"	"	A3	"
4	"	"	42.9MC	"	"	A4	Adjust for maximum deflection.
5	"	"	45.2MC	"	"	A5	Adjust for maximum deflection on outer peak. Repeat steps 4 and 5.
6	"	"	42.1MC	"	"	A6	Adjust for maximum deflection on outer peak.
7	"	"	45.7MC	"	"	A7	"
8.	"	"	44.1MC	"	"	A8	Adjust for maximum deflection. Repeat steps 6, 7 and 8.

OVERALL VIDEO IF RESPONSE CHECK

Adjust the bias supply potentiometer for -3.5 volts at C61.
Connect the high side of an RF signal generator to chassis near V4. Leave the low side disconnected. This generator is to be used to provide markers on the response curve. Use only enough marker and sweep generator output to provide usable indication on scope.
Restore V3 tube shield to its normal position.
Connect a 300MMF capacitor across the vertical input terminals of scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	41.25MC 42.25MC 42.75MC 45.0MC 45.75MC 47.25MC	10	Vert. Amp. thru 18KΩ to point (A). Low side to chassis.		Check for response curve similar to Fig. 1. If necessary, SLIGHTLY retouch A4 thru A8 to obtain desired response. Reduce bias to zero and use high scope gain to view 41.25MC and 47.25MC trap response.

SOUND IF ALIGNMENT

Replace V9 in its socket and remove bias battery. Tune in a TV station and reduce signal into set until a hiss is heard in the sound. The signal input may be reduced by inserting an attenuator pad in series with the antenna lead-in and the receiver antenna terminals. If an attenuator pad is not available, disconnect the antenna lead-in and stray feed the signal into the receiver by placing the antenna lead-in near the receiver's antenna terminals.
Adjust the fine tuning control until sound bars just appear on the screen and adjust A9 until the horizontal scanning lines are smooth and continuous. Readjust the fine tuning control for clearest picture and best sound.
Set the buzz control (R4A) to its mid-range position. Adjust the sound take-off coil (A10), the sound IF transformer (A11 and A12) and the quadrature coil (A13) for clearest sound and minimum buzz. If the hiss should disappear during adjustment, reduce the signal input into the receiver until the hiss returns.

SOUND IF ALIGNMENT USING ON THE AIR SIGNAL AND VTVM

Turn the set on and tune in a TV station.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	Not used	Not used	Not used	Tune in any local station	DC probe thru detector (Fig. 2) to pin 2 (grid) of 6BN6 (V11).	A10, A11, A12	Adjust for maximum deflection.
11.	"	"	"	"	Not used	A13	Set buzz control (R4A) to its mid-range position and adjust A13 for maximum sound. SLIGHTLY readjust R4A for MINIMUM buzz.
12.	.01MFD	High side to point (A). Low side to chassis.	4.5MC (Unmod)	Any unused channel	DC probe thru detector (Fig. 2) to pin 2 (grid) of picture tube.	A9	Adjust for MINIMUM deflection.

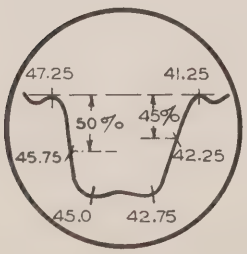


FIG. 1

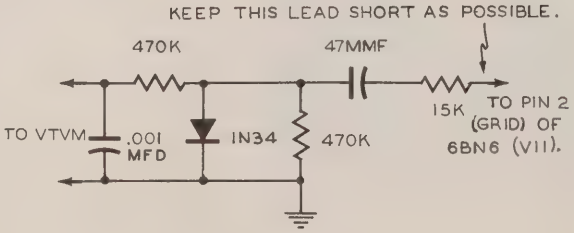


FIG. 2

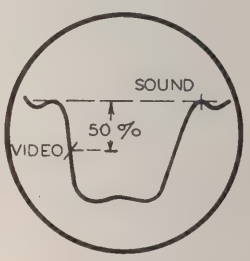


FIG. 3

ALIGNMENT INSTRUCTIONS (cont)

OSCILLATOR ALIGNMENT

Connect the bias supply as under "Overall Video IF Response Check". Remove V9 from its socket.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

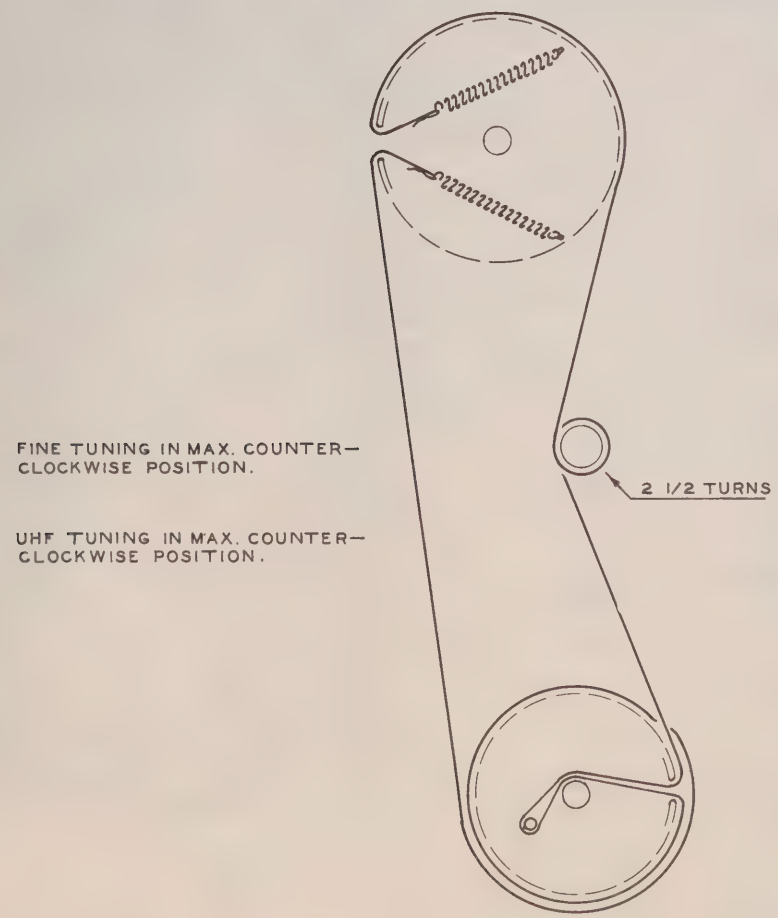
	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 18KΩ to point Ⓐ. Low side to chassis.	A14	Adjust to place sound marker in trap notch as in Fig. 3. Video marker should be at 50%.
14.	"	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"		Check for sound and video marker placement as in Fig. 3. If necessary, make compromise adjustment of A14 for any individual channel. Check all other high band channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
15.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A15	Adjust to place sound marker in trap notch as in Fig. 3.
16.	"	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"		Check for sound and video marker placement as in Fig. 3. If necessary, make compromise adjustment of A15 for any individual channel. Recheck all other low band channels to see that they have not been seriously affected.
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

RF AND MIXER ALIGNMENT

The RF and mixer portion of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion of the receiver should not be required in the field.

UHF TUNER ALIGNMENT

Alignment of this portion of the receiver is not recommended in the field. Should the UHF tuner require major repair or alignment the entire UHF tuner unit should be returned to the factory service department.

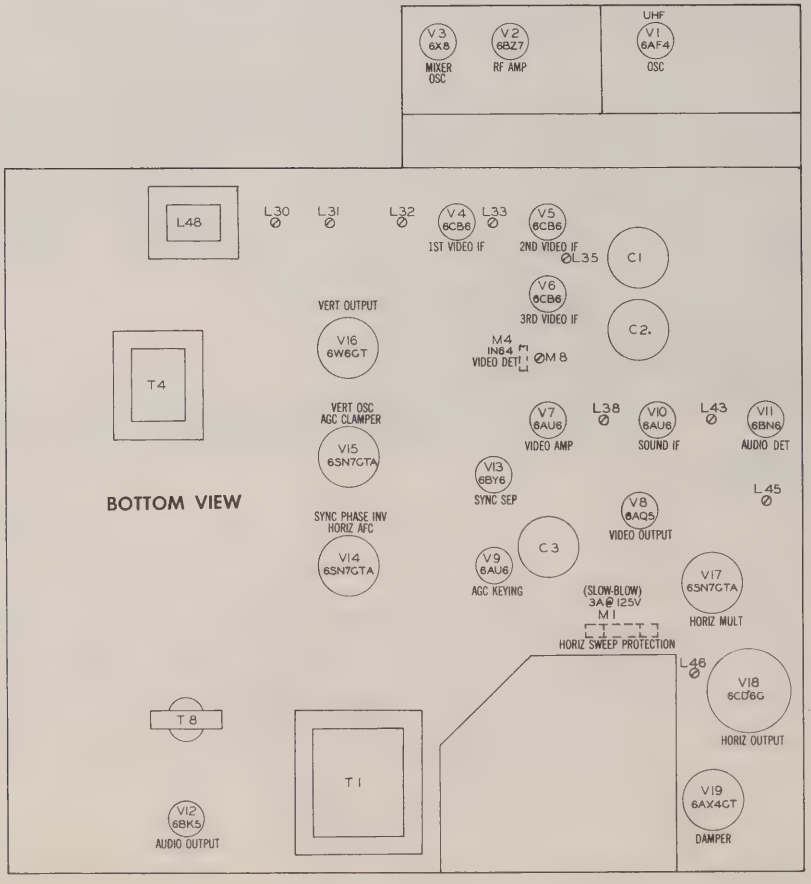


UHF DRIVE CORD STRINGING

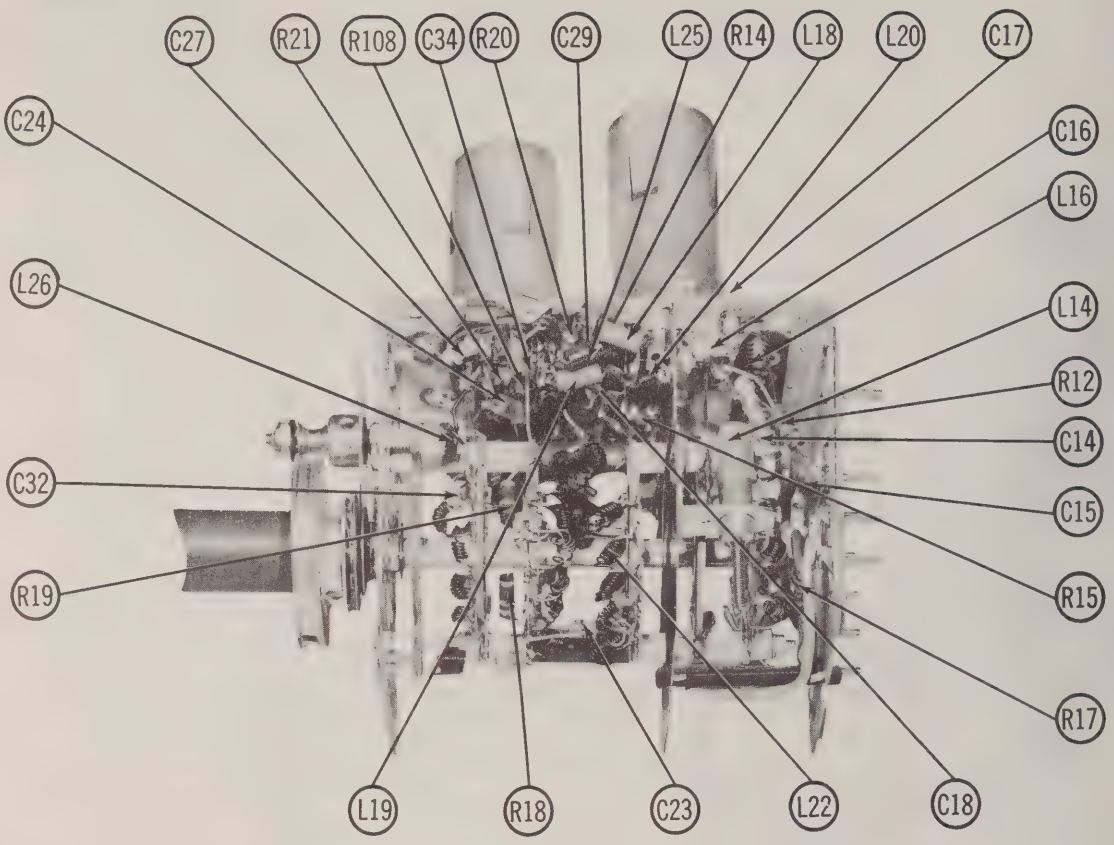
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AF4	†■8. 7KΩ	15KΩ	0Ω	. 1Ω	0Ω	15KΩ	†■8. 7KΩ		
V 2	6BZ7	†1. 2KΩ	500KΩ	INF	. 1Ω	0Ω	INF	650KΩ	0Ω	0Ω
V 3	6X8	0Ω	15KΩ	†25KΩ	0Ω	. 1Ω	270Ω	0Ω	†6. 5KΩ	†8KΩ
V 4	6CB6	86KΩ	47Ω	0Ω	. 1Ω	†2. 1KΩ	†2. 1KΩ	0Ω		
V 5	6CB6	83KΩ	47Ω	0Ω	. 1Ω	†2. 1KΩ	†2. 1KΩ	0Ω		
V 6	6CB6	. 1Ω	180Ω	0Ω	. 1Ω	†2. 1KΩ	†2. 1KΩ	0Ω		
V 7	6AU6	4KΩ	0Ω	. 1Ω	0Ω	†6. 6KΩ	†13KΩ	0Ω		
V 8	6AQ5	▲750KΩ	800Ω	0Ω	. 1Ω	†3. 5KΩ	†500Ω	▲750KΩ		
V 9	6AU6	†50KΩ	†1. 1KΩ	0Ω	. 1Ω	300KΩ	†0Ω	†1. 1KΩ		
V 10	6AU6	1. 6Ω	0Ω	0Ω	. 1Ω	†18KΩ	†18KΩ	330Ω		
V 11	6BN6	700Ω	2. 8Ω	0Ω	. 1Ω	†7KΩ	4. 6Ω	†320KΩ		
V 12	6BK5	†750Ω	INF	800KΩ	. 1Ω	0Ω	0Ω	800KΩ	†500Ω	INF
V 13	6BY6	50KΩ	0Ω	0Ω	. 1Ω	†150KΩ	†30KΩ	1. 5Meg		
V 14	6SN7GTA	†150KΩ	†5. 8KΩ	3. 9KΩ	350KΩ	15KΩ	150KΩ	. 1Ω	0Ω	
V 15	6SN7GTA	600KΩ	600KΩ	0Ω	1. 7Meg	†1. 8Meg	0Ω	. 1Ω	0Ω	
V 16	6W6GT	INF	. 1Ω	†700Ω	†1KΩ	▲2.2Meg	1Ω	0Ω	800Ω	
V 17	6SN7GTA	1.3Meg	†8. 2KΩ	1. 1KΩ	140KΩ	†120KΩ	1. 1KΩ	. 1Ω	0Ω	
V 18	6CD6G	INF	. 1Ω	0Ω	▲0Ω	▲470KΩ	†120KΩ	0Ω	†6KΩ	Top Cap ◓8. 5Ω
V 19	6AX4GT	†16Ω	INF	650KΩ	INF	†30Ω	INF	0Ω	. 1Ω	
V 20	1B3GT	PINS 1-8 HAVE INFINITE RESISTANCE								Top Cap ◓325Ω
V 21	21AMP4A	0Ω	470KΩ	Pin 10 ◓470KΩ	Pin 11 †180KΩ	Pin 12 †. 1Ω				

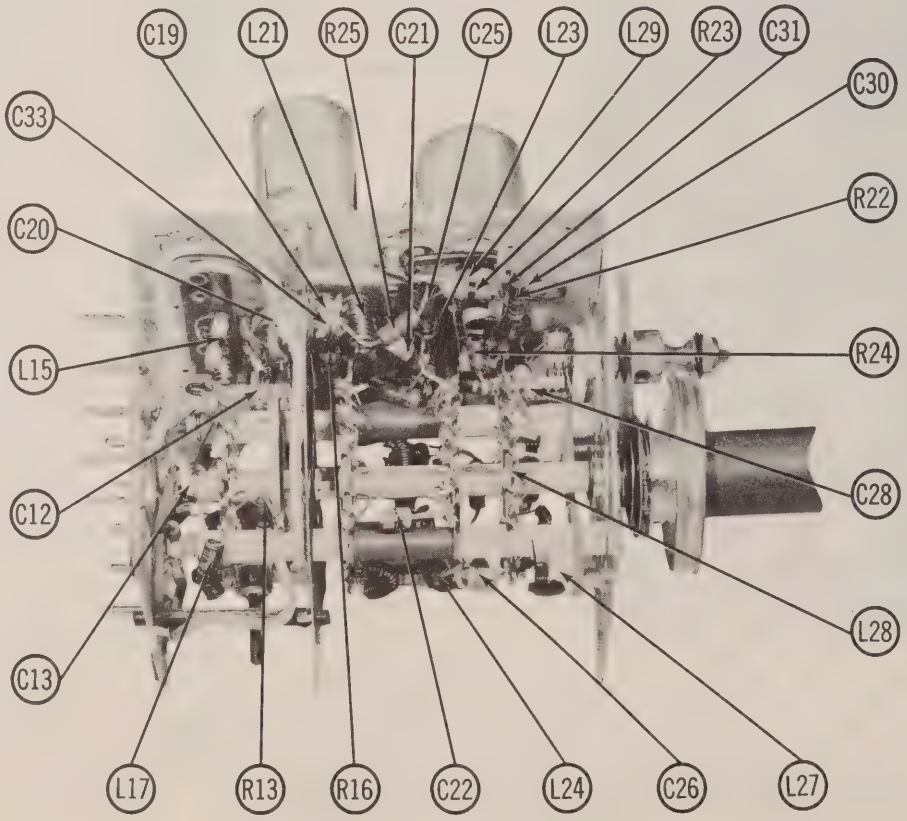
† MEASURED FROM OUTPUT OF M2.
■ MEASURED IN "UHF" POSITION.
▲ MEASURED FROM -16V LINE.
ALL MEASUREMENTS IN "VHF" POSITION UNLESS OTHERWISE DESIGNATED:
◓ MEASURED FROM PIN 3 OF V19.



TUBE PLACEMENT CHART

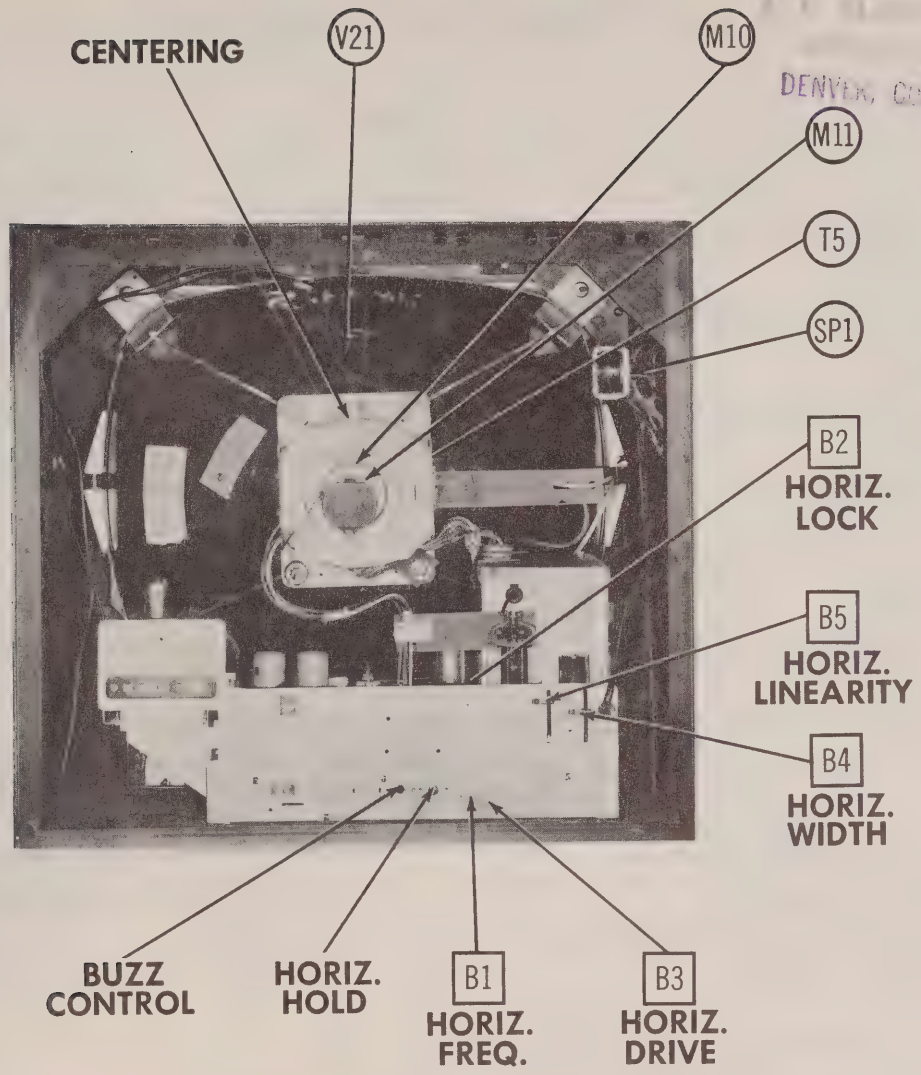


RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

DENVER, COLO.



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

① Set the horizontal hold control to its mid-range position.

② Connect a short jumper across the horizontal oscillator coil (L46).

③ Connect the DC probe of VTVM to grid (pin 4) of 6SN7 (V17). Connect common to chassis. Adjust horizontal frequency (B1) for zero volts at VTVM.

④ Remove jumper across L46 and adjust horizontal lock (B2) for zero volts at VTVM. Remove VTVM.

⑤ If picture does not lose sync at extreme settings of horizontal hold control slight readjustment of B1 may be necessary.

Turn the horizontal drive trimmer (B3) clockwise as far as possible without the presence of a vertical white line near the center of the raster.

Simultaneously adjust the width (B4) and horizontal linearity (B5) for a picture that is symmetrical from left to right and slightly wider than necessary to fill the picture mask horizontally.

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V18 and V19. Check M1 and M2. Check adjustments B3, B4 and B5. Check T3, T5A, R106, R107, R108 and other associated components.

DRIVE LINES

Check by substitution V18 and V19. Check adjustments B3 and B5. Check C98, R103, R107, R106, R108 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V18 and V19. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V17, V18 and V19. Check C93 for open. Check R99, C96 and other associated components.

XMAS TREE EFFECT

Check by substitution V17, V18 and V19. Check T3 and T5A for internal arcing. Check L46, C97, R100, R102 and other associated components.

VERTICAL

LOSS OF SWEEP

Check by substitution V15 and V16. Check waveform W10.

If Satisfactory	If Unsatisfactory
Check T4, T5B, C83, C4C, R89, R2B and other associated components.	Check C82, T2, R85, R3B and other associated components.

INSUFFICIENT SWEEP

Check by substitution V15 and V16. Check height and vertical linearity controls for proper operation. Check T4 and T5B.

COMPRESSED AT BOTTOM

Check by substitution V15 and V16. Check T2, R85, R3B, C82 and other associated components.

COMPRESSED AT TOP

Check by substitution V15 and V16. Check C82, C4C, T4, R2B and other associated components.

FOLDS

Check by substitution V15 and V16. Check T4, T5B, C82, C80, C81, R86, R87 and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V13 and V14. Check C75, C76, C77, R75, R74, R80 and other associated components.

LOSS OF VERTICAL SYNC - HORIZONTAL SYNC SATISFACTORY

Substitute V15. Check waveform W8.

If Satisfactory	If Unsatisfactory
Check T2, R84, R2A and other associated components.	Check vertical integrator network and C79. Check video IF alignment for overloading.

LOSS OF HORIZONTAL SYNC - VERTICAL SYNC SATISFACTORY

Check by substitution V14 and V17. Check horizontal AFC network. Check L46, C97, R5, R101 and other associated components.

HORIZONTAL BENDING

Check by substitution V9, V13, V14 and V15. Check horizontal AFC network.

VIDEO

LOSS OF VIDEO

Check by substitution V7 and V8. Check C56, C57, R46, R43, L40, L39 and other associated components.

SOUND BARS (4.5MC Beat)

Adjust tuner fine tuning for best sound and picture. Check adjustment A9. Check video IF alignment.

POOR CONTRAST

Check by substitution V7 and V8. Check video crystal detector network. Check contrast control, picture tube, C57 and other associated components.

NEGATIVE PICTURE

Check by substitution V7 and V8. Check picture tube, C57, L37, L39, L40 and R39. Check video crystal detector network.

SMEAR

Check by substitution V7 and V8. Check L37, L36, L39, L40, L42 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V2, V4, V5, V6, V7 and V8 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V10, V11 and V12. Check stage V12 using audio signal generator. Apply audio signal across R1B.

If Satisfactory	If Unsatisfactory
Check detector and audio IF stages for component failure or change of value.	Check C73, C74, T8, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustments R4 and A13 for minimum buzz. If still unsatisfactory, check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak or No Sound".

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on volume control and T1. If filaments light, check R118, M1 and M2. Check B+ filter and decoupling network for failure or change of value.

SMALL AND/OR DIM PICTURE

Check M1 and M2. Check R118. Check B+ filter and decoupling network.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: Silvertone PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	UHF Oscillator	6AF4	6AF4	7DK	
V2	RF Amplifier	6BZ7	6BZ7	9AJ	
V3	Mixer - Osc.	6X8	6X8	9AK	
V4	1st. Video IF Amp.	6CB6	6CB6	7CM	
V5	2nd. Video IF Amp.	6CB6	6CB6	7CM	
V6	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V7	Video Amplifier	6AU6	6AU6	7CK	
V8	Video Output	6AQ5	6AQ5	7BZ	
V9	AGC Keying	6AU6	6AU6	7BK	
V10	Sound IF Amp.	6AU6	6AU6	7BK	
V11	Audio Detector	6BN6	6BN6	7DF	
V12	Audio Output	6BK5	6BK5	9BQ	
V13	Sync Separator	6BY6	6BY6	7CH	
V14	Sync Phase Inv.-Horiz. AFC	6SN7GTA	6SN7GTA	8BD	
V15	Vert. Oscillator-AGC Clamper	6SN7GTA	6SN7GTA	8BD	
V16	Vert. Output	6W6GT	6W6GT	7S	
V17	Horiz. Mult.	6SN7GTA	6SN7GTA	8BD	
V18	Horiz. Output	6CD6G	6CD6G	7BT	
V19	Damper	6AX4GT	6AX4GT	4CG	
V20	HV Rectifier	1B3GT	1B3GT	3C	

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: Silvertone PART No.	CBS-HYTRON PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.	RETMA BASE TYPE	NOTES
V21	21AMP4A 21AMP4	21AMP4A 21AMP4		21AMP4A 21AMP4 21ACP4 21ACP4A	21AMP4A 21AMP4	12N 12N 12N 12N	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Silvertone PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1	150	150	22422-26	AFHS1-70		XA004		FP117	TVC-3442	
C2	150	150	22422-26	AFHS1-70		XA004		FP117	TVC-3442	
C3A	▲80	300	22422-24	AFH4-07				FP333.8	TVL-4641	
B	■60	300		PRS450/50				TC68	TVA-1608	
C	▲20	300								
D	10	300								
C4A	▲60	300	22422-25	AFH3-122		C036		FP333.2	TVL-4630	
B	■40	300				BRH501				
C	▲100	50								
C5	10	50	42008	PRS50/10		BR105		TC32	TVA-1304	
C6	2	150	41534	PRS150/4		BR245		TC40	TVA-1301	
C7	1000			BPD-001	DD-102	K069	801-001	DC-511	5HK-S1	
C8	1.5									
C9	22				TCN-22	TN06				
C10	82			SI82	D6-820	TZ28	GP1K-820		5GA-Q82	
C11	1000			BPD-001	DD-102	K069	801-001	DC-511	5HK-S1	
C12	15			SI15	D6-150	TP11	GP1K-150	UC-5415	5GA-Q15	
C13	0.8									
C14	470			SI470NP0						
C15	1000			BPD-001	DD-102	K069	801-001	DC-511	5HK-S1	
C16	1.2						NP0K-1R2			
C17	10									
C18	1000			EF-001	MFT-1000				503C-D1	
C19	1000			EF-001	MFT-1000				503C-D1	
C20	1000			EF-001	MFT-1000				503C-D1	
C21	47			SI47	D6-470	TP29	GP1K-470	UC-5447	5TCU-Q47	
C22	0.3									
C23	2									
C24	.56									
C25	1000			BPD-001	DD-102	K069	801-001	DC-511	5HK-S1	
C26	1.8									
C27	1.5									
C28	10									
C29	1000			BPD-001	DD-102	K069	801-001	DC-511	5HK-S1	
C30	4.7			SI4.7NP0	TCZ-4.7	TZ07	NP0K-4R7	ZT-5547	5TCCB-V47	
C31	1000			BPD-001	DD-102	K069	801-001	DC-511	5HK-S1	
C32	2.2			SI2.2NP0	TCZ-2.2	TZ05	NP0K-2R2		5TCCB-V22	
C33	1000			EF-001	MFT-1000				503C-D1	
C34	1000			BPD-001	DD-102	K069	801-001	DC-511	5HK-S1	
C35	1000	1500		HVD15-001	DD30-102	MCD1	IR5KV-102	MCK210	20GA-D1	
C36	1000	1500		HVD15-001	DD30-102	MCD1	IR5KV-102	MCK210	20GA-D1	
C37	1000	1500		HVD15-001	DD30-102	MCD1	IR5KV-102	MCK210	20GA-D1	
C38	1000	1500		HVD15-001	DD30-102	MCD1	IR5KV-102	MCK210	20GA-D1	
C39	.1	400		P488-1	DF-104	CUB4P1		PT401	4TM-P1	
C40	.1	400		P488-1	DF-104	CUB4P1		PT401	4TM-P1	
C41	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C42	20		40355-13							
C43	22		40355-15							
C44	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C45	470			BPD-00047	D6-471	K060	831-471	UC-5347	5GA-T47	
C46	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C47	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C48	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C49	470			BPD-00047	D6-471	K060	831-471	UC-5347	5GA-T47	
C50	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C51	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C52	470			BPD-00047	D6-471	K060	831-471	UC-5347	5GA-T47	
C53	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C54	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C55	47			N750K-470	TCN-470	TN14	N750K-470	NT-5447	5TCU-Q47	
C56	.047	400		P488-047	DF-503	CUB4S47		PT4147	4TM-S47	
C57	.047	400		P488-047	DF-503	CUB4S47		PT4147	4TM-S47	
C58	.1	400		P488-1	DF-104	CUB4P1		PT401	4TM-P1	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	Silvertone PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C98	1000	1000		BPD-001	DD16-103	VD1	IR5KV-102	MCK310	10GA-D1	
C80	4700			BPD-0047	DD-472	K079	801-0047	DC-5347	5HK-D47	
C81	.02	300		P288-23		P23P23		PT4022	3TM-P22	
C82	4700			BPD-0047	DD-472	K079	801-0047	DC-5347	5HK-D47	
C83	4700			BPD-0047	DD-472	K079	801-0047	DC-5347	5HK-D47	
C84	4700			BPD-0047	DD-472	K079	801-0047	DC-5347	5HK-D47	
C85	10000			BPD-01	DD-103	K082	5U-01	DC-531	5HK-81	
C86	10000			BPD-01	DD-103	K082	5U-01	DC-531	5HK-81	
C87	10000			BPD-01	DD-103	K082	5U-01	DC-531	5HK-81	
C88	4700			BPD-0047	DD-472	K079	801-0047	DC-5347	5HK-D47	
C89	1000			BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C70	.22	400		P488-23		CUB4P23		PT4022	4TM-P22	
C71	4700			BPD-0047	DD-472	K079	801-0047	DC-5347	5HK-D47	
C72	10000			BPD-01	DD-103	K082	5U-01	DC-531	5HK-81	
C73	10000			BPD-01	DD-103	K082	5U-01	DC-531	5HK-81	
C74	3300	1000		P1089-004		CUB1ED4		PT1E24	MB-D4	
C75	470			BPD-00047	D6-471	K060	831-471	UC-5347	5GA-T47	
C76	.01	600		P488-01	DD-103	CUB3M1	GP2-333-103	PT401	6TM-S1	
C77	.1	400		P488-1	DP-104	CUB4P1		PT401	4TM-P1	
C78A	2200		a34166	aPA-L10	aPC-100	a1STM1	a1408-01	DC-522	aV-1	
B	4700							DC-523		
C	4700							DC-525		
C79	.0047	600		P888-0047	D6-472	CUB4D47	GP2-333-472	PT8347	6TM-D47	
C80	.047	600		P888-047	DP-503	CUB5S47		PT4147	5TM-S47	
C81	.033	200		P288-033		P23S33		PT4123	3TM-S33	
C82	.1	600		P888-1	DP-104	CUB4P1		PT401	4TM-P1	
C83	.047	200		P288-047	DP-503	P23S47		PT4147	3TM-S47	
C84	.1	400		P488-1	DP-104	CUB4P1		PT401	4TM-P1	
C85	.1	400		P488-1	DP-104	CUB4P1		PT401	4TM-P1	
C86	470			BPD-00047	D6-471	K060	831-471	UC-5347	5GA-T47	
C87	470			BPD-00047	D6-471	K060	831-471	UC-5347	5GA-T47	
C88	270			S1270N750	TCN-270	N063	N750-337-271			
C89	100			BPD-0001	D6-101	C043	GPUK-101	UC-531	5GA-T1	
C90	.01	600		P888-01	DD-103	CUB3S1	GP2-333-103	PT811	6TM-S1	
C91	2000			BPD-002	DD-203	K072	801-002	DC-533	5HK-D2	
C92	4700			BPD-0047	DD-472	K079	801-0047	DC-5347	5HK-D47	
C93	.047	200		P288-047	DP-503	P23S47		PT4147	3TM-S47	
C94	270			S1270N750	TCN-270	N063	N750-337-271		PT8047	6TM-P47
C95	.01	600		P888-01	DD-103	CUB3S1	GP2-333-103	PT811	6TM-S1	
C96	100			S1100N750	TCN-100	N043	N750L-101	NT-531	5TCU-T1	
C97	3900			1467-004		1H3D39		MCE463	4H-S4	
C98	330			S1330N750			N750-333-331		5TCU-T33	
C99	4700			BPD-0047	D6-472	K079	801-0047	DC-5347	5HK-D47	
C100	.047	600		P888-047		CUB5S47		PT8147	6TM-S47	
C101	.047	600		P888-047		CUB5S47		PT8147	6TM-S47	
C102	.33	400		P488-33		CUB4P33		PT4033	4TM-P33	
C103	150	5000	40538						20HKB-S1	
C104	.47	600		684-47		CUB6P47		PT8047	6TM-P47	
C105	150	2000								
C106	10000	1500			DD16-103				20HKB-S1	
C107	10000	1500			DD16-103				20HKB-S1	
C108	1000			BPD-001	DD-103	K069	801-001	DC-531	5HK-D1	

♦ Items C78A, C78B, C78C, R82A, R82B and R82C are combined in one unit.

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	Silvertone PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No	INSTALLATION NOTES
R1A	100KΩ		N23464-54		RTV-490			Brightness (Panel)
B	1Meg							Volume (Rear) Tapped at 200KΩ. Attach to R1B
C	Switch							Vert. Hold (Panel)
R2A	2Meg		N23464-67	•Q2-800	RTV-492	F1-67	UF-2SL	Vert. Linearity (Rear)
B	300KΩ					UR3S2R	UR2S2R	Contrast (Panel)
R3A	250KΩ		N23464-66	•Q2-804	RTV-491	F1-15	UF2S2R	Horiz. Hold (Rear)
B	2.5Meg					R3-76	UR2S5L	Bias
R4A	500K		N41840-1	Q11-105	A47-500-S	AB-4		Attach to R4A
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1		Horiz. Hold
R5A	100KΩ		N41840-3	Q11-120	A47-100K-S	AB-40	U41	Attach to R5A
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	

† Universal replacement (Mallory exact duplicate part no. UE-350)
♦ Universal replacement (Mallory exact duplicate part no. UE-1725)
• CONCENTRATE EQUIVALENT: KIT K-2, BASE ELEMENTS & SHAFTS B11-110 & P1-102 (PANEL)
B17-112 & R11-108 (REAR)
• CONCENTRIKIT EQUIVALENT: KIT K-3, BASE ELEMENTS & SHAFTS B17-111 & P1-103 (PANEL)
B11-239 & R11-108 (REAR)

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	Silvertone PART No.	IRC PART No.	NOTES
R6	68KΩ	2		BTB-68K	
R7	68KΩ	2		BTB-68K	
R8	15KΩ	1		BTB-15K	
R9	2200Ω	1		BTA-2200	
R10	68KΩ	2		BTB-68K	
R11	68KΩ	2		BTB-68K	
R12	15KΩ	½		BTB-15K	
R13	100KΩ	½		BTB-100K	
R14	1Meg 5%	½		BTS-1Meg 5%	
R15	750KΩ 5%	½		BTS-750K 5%	
R16	470Ω	½		BTS-470	
R17	3300Ω	½		BTS-3300	
R18	470Ω	½		BTS-470	
R19	470Ω	½		BTS-470	
R20	270Ω	½		BTS-270	
R21	15KΩ	½		BTS-15K	
R22	3600Ω 5%	½		BTS-3600 5%	
R23	1000Ω	½		BTS-1000	
R24	15KΩ	½		BTS-15K	
R25	620Ω 5%	½		BTS-620 5%	
R26	2700Ω	½		BTS-2700	
R27	47Ω 5%	½		BTS-47 5%	
R28	1000Ω	½		BTS-1000	
R29	1000Ω	½		BTS-1000	
R30	1000Ω	½		BTS-1000	
R31	27KΩ 5%	½		BTS-27K 5%	
R32	47Ω 5%	½		BTS-47 5%	
R33	1000Ω	½		BTS-1000	
R34	39000Ω 5%	½		BTS-39000 5%	
R35	27KΩ 5%	½		BTS-27K 5%	
R36	180Ω	½		BTS-180	
R37	12KΩ	½		BTS-12K	
R38	1000Ω	½		BTS-1000	
R39	22000 5%	½		BTS-22000 5%	
R40	47KΩ	½		BTS-47K	
R41	3.3Meg 5%	½		BTS-3.3Meg 5%	Note 1
R42	47KΩ	½		BTS-47K	

RESISTORS (cont)

ITEM No	RATING OHMS	RATING WATT	Silvertone PART No.	IRC PART No.	NOTES
R43	33000 5%	½		BTS-3300 5%	
R44	3.3Meg 5%	½		BTS-3.3Meg 5%	
R45	820KΩ 5%	½		BTS-820K 5%	
R46	20000 5%	4		PW4-2000 5%	
R47	130KΩ	½		BTS-120K	
R48	22KΩ	½		BTS-22K	
R49	100KΩ	½		BTS-100K	
R50	470KΩ	½		BTS-470K	
R51	470Ω	2		BTS-470	
R52	65000 5%	4		PW4-6500 5%	
R53	47KΩ	½		BTS-47K	
R54	330KΩ 5%	½		BTS-330K 5%	
R55	6.8Meg 5%	½		BTS-6.8Meg 5%	
R56	470KΩ 5%	½		BTS-470K 5%	
R57	47KΩ	½		BTS-47K	
R58	47KΩ	½		BTS-47K	
R59	12KΩ	½		BTS-12K	
R60	180KΩ 5%	½		BTS-180K 5%	
R61	82KΩ 5%	½		BTS-82K 5%	
R62	330Ω	½		BTS-330	
R63	18KΩ	½		BTA-18K	
R64	22KΩ	½		BTA-22K	
R65	6800Ω	½		BTA-6800	
R66	680Ω	½		BTS-680	
R67	270KΩ	½		BTS-270K	
R68	47KΩ	½		BTS-47K	
R69	82KΩ	½		BTS-82K	
R70	1Meg 5%	½		BTS-1Meg 5%	
R71	5.7Meg 5%	½		BTS-5.7Meg 5%	
R72	1.5Meg	½		BTS-1.5Meg	
R74	27KΩ 5%	½		BTA-27K 5%	
R75	150KΩ	½		BTS-150K	
R76	150KΩ	½		BTB-150K	
R77	6800Ω	½		BTB-6800	
R78	10KΩ	½		BTA-10K	
R79	3900Ω	2		BTB-3900	
R80	4700Ω	½		BTS-4700	
R81	27KΩ	½		BTB-27K	

ITEM No.	RATING OHMS	RATING WATT	Silvertone PART No.	IRC PART No.	NOTES
R82A	22KΩ		a24186	BTS-22K	
B	820Ω			BTS-820	
C	8200Ω			BTS-8200	
R83	470KΩ			BTS-470K	
R84	1.2Meg 5%			BTS-1.2Meg 5%	
R85	470KΩ			BTS-470K	
R86	1800Ω			BTS-1800	
R87	82000 5%			BTS-8200 5%	
R88	2.2Meg			BTS-2.2Meg	
R89	4.7KΩ			BTS-470	
R90	12KΩ			BTB-12K	
R91	560Ω			BTS-560	
R92	560Ω			BTS-560	
R93	82KΩ 5%			BTS-82K 5%	
R94	82KΩ 5%			BTS-82K 5%	
R95	180KΩ			BTB-150K	
R96	15KΩ			BTB-15K	
R97	18KΩ			BTB-18K	
R98	1Meg			BTB-1Meg	
R99	1000Ω 5%			BTS-1000 5%	
R100	8200Ω			BTA-8200	
R101	82KΩ			BTB-82K	
R102	120KΩ			BTB-120K	
R103	8200Ω 5%			BTS-8200 5%	
R104	470KΩ			BTB-470K	
R105	47Ω			BTS-47	
R106	18KΩ			BTB-18K	
R107	18KΩ			BTB-18K	
R108	18KΩ			BTB-18K	
R109	10Ω			BTS-10	
R110	470KΩ			BTB-470K	
R111	470KΩ			BTB-470K	
R112	33Ω			BTB-33	
R113	470Ω			BTA-470	
R114	470Ω			BTA-470	
R115	470Ω			BTA-470	
R116	1100Ω 5%	10	N41165-112		
R117	10KΩ			BTB-10K	
R118	5Ω		N41683		
R119	68KΩ	2		BTB-68K	
R120	2.2Meg	2		BTB-2.2Meg	Note 2

♦ R82A, R82B, R82C, C78A, C78B and C78C are combined in one unit.
Note 1: Some versions may use a 4.7Meg in this application.
Note 2: Not used in some versions.

TRANSFORMER (FILAMENT)

ITEM No	RATING PRI	RATING SEC 1	RATING SEC 2	Silvertone PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC	6.3VAC @1.5A	@.12A	42544						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	Silvertone PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Rem PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Osc. Trans.	41745-1	B6T02	A-3003	209T1 ①	V405	A-8125	24A87 ①	A-97X
T3	Horiz. Output Trans.	41863					A-8244 ②	FLY-80 ②	
T4	Vert. Output Trans.	41994-1	Z1803	A-3038		V307	A-8144	26S72	A-108X
T5A	Yoke (90°)-Horiz. (15MH)	42504 ③	DF806 ③④	MDF-91 ③④			DY-13A ③	Y-14 ③	
B	Yoke (90°)-Vert. (40MH)								
T6	Horiz. Lin. Coil (L.S-5.6MH)	41867 ⑤	RF800 ⑤	MWC-6 ⑤	213R1 ⑤	20LR15 ⑤	WC-8 ⑤	WC-18 ⑤	WC-13 ⑤
T7	Width Coil (2.5-16MH)	41864 ⑥	RF800 ⑥ ⑪	MWC-6 ⑥	213R3 ⑥	20LR16 ⑥	WC-8 ⑥	WC-18 ⑥	WC-13 ⑥ ⑪

① Drill new mounting holes.
② Includes capacitor C105; Resistors R38 and R92.
③ Connect as in original circuit.
④ Use original horiz. yoke damping network if necessary.
⑤ Does not include core; part no: 43157.
⑥ Drill new mounting hole.
⑦ Use original slider and cord.
⑧ Connect to coded blue and green terms.
⑨ Connect to terms #3 and #4.
⑩ Connect to coded red and blue terms.
⑪ Connect to terms #1 and #3.
⑫ Connect original terminal #8 to new terminal #5, original #5 to new #4, original #4 to new #3, original #3 to new #2, original #1 to new #1. Remove original terminal #3 connection. If excessive yoke "ringing" occurs, connect a 1000Ω resistor in series with C105 horizontal yoke damping capacitor.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE PRI	IMPEDANCE SEC	Silvertone PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T8	6.2KΩ	3.3Ω	42144-1	A-3878	A-2901	S-7X	Z1113	22B46	

SPEAKER

ITEM No.	RATINGS SIZE	RATINGS FIELD	RATINGS V C IMP	Silvertone PART No	VIKING PART No	QUAM PART No.	NOTES
SP1	5"	PM	3.5Ω	N25756-1	526	5A1	

COILS (RF-IF)

ITEM No.	USE	DC RES PRI.	DC RES SEC.	Silvertone PART No	MEISSNER PART No	MERIT PART No.	MILLER PART No.	NOTES
L1	UHF Ant. Primary Coil	0Ω						
L3	UHF Ant. Secondary Coil	0Ω						
L3	UHF RF Coil	0Ω						
L4	UHF Osc. Coupling Coil	0Ω						
L5	UHF Osc. Coil	0Ω						
L6	UHF Osc. Coil	0Ω						
L7	UHF Mixer Coil	0Ω						
L8	UHF Fil. Choke	0Ω						
L9	UHF Fil. Choke	0Ω						
L10	UHF Cathode Choke	0Ω						
L11	UHF RF Choke	0Ω						
L12	UHF RF Coil	1.4Ω						
L13	UHF IF Output Coil	0Ω						
L14	UHF IF Coil	.1Ω						
L15	VHF Ant. Trans.	0Ω	0Ω					
L16	VHF Ant. Coil	0Ω						Channel 13 position
L17	VHF Ant. Coil Trim	0Ω						
L18	VHF Fil. Choke	0Ω						Channel 13 position
L19	VHF Fil. Choke	0Ω						
L20	VHF Neut. Coil	0Ω						
L21	VHF RF Coil	0Ω						Channel 13 position
L22	VHF RF Coils	0Ω						
L23	VHF Mixer Grid Coil	0Ω						Channel 13 position
L24	VHF Mixer Grid Coils	0Ω						
L25	VHF Fil. Choke	0Ω						Channel 13 position
L26	VHF Osc. Coil	0Ω						Channel 6 position
L27	VHF Osc. Coil	0Ω						
L28	VHF Osc. Coils	0Ω						
L29	VHF Conv. Plate	.1Ω						
L30	39.75MC Trap	0Ω		41848	17-4501*			
L31	47.25MC Trap	0Ω		41849	17-4502*			
L32	1st Video IF	0Ω		43037			6317	Includes 41.25MC trap
L33	2nd Video IF	.1Ω		43135	17-4523		6319	
L34	Fil. Choke	0Ω		32096	19-1000		4602	
L35	3rd Video IF	.1Ω		43135	17-4523		6319	
L36	Series Peaking Coil	4.2Ω		25468-23	18-7100■	TV-181■	4642■	100 Microhenries; Wound on 8.2KΩ resistor
L37	Shunt Peaking Coil	4.4Ω		25468-33	18-3125		6153	130 Microhenries
L38	4.5MC Trap	1.8Ω	1.6Ω	41878				
L39	Series Peaking Coil	8Ω		25468-39	18-3180▲	TV-184▲	6180▲	185 Microhenries; Wound on 12KΩ resistor
L40	Shunt Peaking Coil	12Ω		25468-30	18-3300●	TV-186●	6174●	300 Microhenries; Wound on 5.2KΩ resistor
L41	Series Peaking Coil	4.8Ω		25468-31	18-3125●		6153●	130 Microhenries; Wound on 5.6KΩ resistor
L42	Shunt Peaking Coil	8Ω		25468-34	18-3180	TV-184	6154	200 Microhenries
L43	Sound IF	4.8Ω	3.8Ω	41177	18-3445	TV-208▲	6303†	
L44	Cathode Choke	4.8Ω		25468-32	18-3125		6153	130 Microhenries
L45	Quadrature Coil	4.8Ω		40927	17-1031●	TV-1094	14667	
L46	Horiz. Osc.	60Ω		33449	19-1076	TV-152	6310	
L47	RF Choke	4.8Ω		25468-10	18-3083	TV-181	6177	93 Microhenries

▼ Use trap winding only.
■ Parallel with 8.2KΩ resistor.
▲ Parallel with 12KΩ resistor.
● Parallel with 5.6KΩ resistor.
◆ Drill two new mounting holes.
† Use adaptor plate.
# Drill one new mounting hole.
† Drill one new mounting hole and use one winding only.

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D.C. RESISTANCE	RATINGS INDUCTANCE @ CURRENT 1000 (%)	Silvertone PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L48	.340A	47.8Ω	2.16 Hy.	23561-6				C-5037	

PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	Silvertone PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.350A	42383	1237A	D4517			500	
M2	.350A	42383	1237A	D4517			500	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Silvertone PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M3	3AG S/B	1/4A 125V	42158	42156	313.250 (1/4A-3AG-S/B)	357001	MDL 1/4	4405

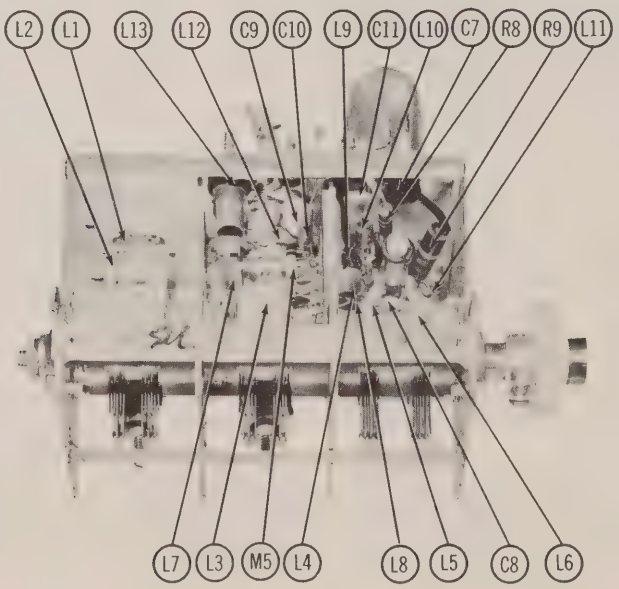
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		Silvertone PART No.	FEDERAL PART No.	SYLVANIA PART No.	
M4	1N64	23261	1N60 or 1N64A	1N60 or 1N132	Video Det.
M5	1N82*		1N82	1N82 or 1N82A	UHF Crystal Mixer

* Some versions may use a 1N82A or K3 crystal diode in this application.

MISCELLANEOUS

ITEM No.	PART NAME	Silvertone PART No.	NOTES
M6	Dial Light		#47 - Bayonet
M7	Tuner	42167	VHF
M8	Tuner	41738	UHF
M9	Video Det. Assy.	42087	Includes resistors, capacitors, coils and M4
M10	Focus Magnet	42550-1	Includes centering device.
M11	Ion Trap	42523-1	
B1, B3	Trimmer cap.		2 Section - Horiz. Drive & Horiz. Freq. (110-480 MMF. each)
	Knob	42409-1	Channel Selector - VHF-Mahogany
	Knob	42389-1	Channel Selector - UHF-Mahogany
	Knob	42409-2	Channel Selector - VHF-Blonde
	Knob	42389-2	Channel Selector - UHF-Blonde
	Knob	42392	Fine Tuning
	Knob	42390-1	On-Off-Volume--Mahogany
	Knob	42390-2	On-Off-Volume--Blonde
	Knob	42391	Brightness
	Knob	42507-1	Vertical Hold & Contrast-Mahogany
	Knob	42507-2	Vertical Hold & Contrast-Blonde
	Tab	40216	UHF
	Disc	42393	Indicator-UHF
	Safety Glass	42543	Tinted, Tempered
	Safety Glass	42343	Tempered
	Mask	42214-2	Gold, Plastic
	Mask	42214-1	Green, Plastic



UHF TUNER

TROUBLE SHOOTING AIDS (cont)

L. F. CLARK COLLECTION OF DENVER, COLORADO

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V17, V18, V19 and V20. Check waveform W17.

If Satisfactory	If Unsatisfactory
Check T3, T5A, T6, T7, C99, C100, C101, R106, R107, R108 and other associated components.	Check L46, C97, C96, R100, R102, R99 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V18 and V19. Check M1 and M2. Check R106, R107, R108, C104 and other associated components. Check T3 and T5A.

BLOOMING

Check by substitution V18, V19 and V20. Check M1 and M2. Check R102, R103, C98 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or No Sound".

RASTER, NO SOUND, NO PICTURE (VHF)

Check by substitution V2, V3, V4, V5, V6, V7, V8 and V9. Check video IF components for failure or change of value.

RASTER, NO SOUND, NO PICTURE (UHF)

Substitute V1.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

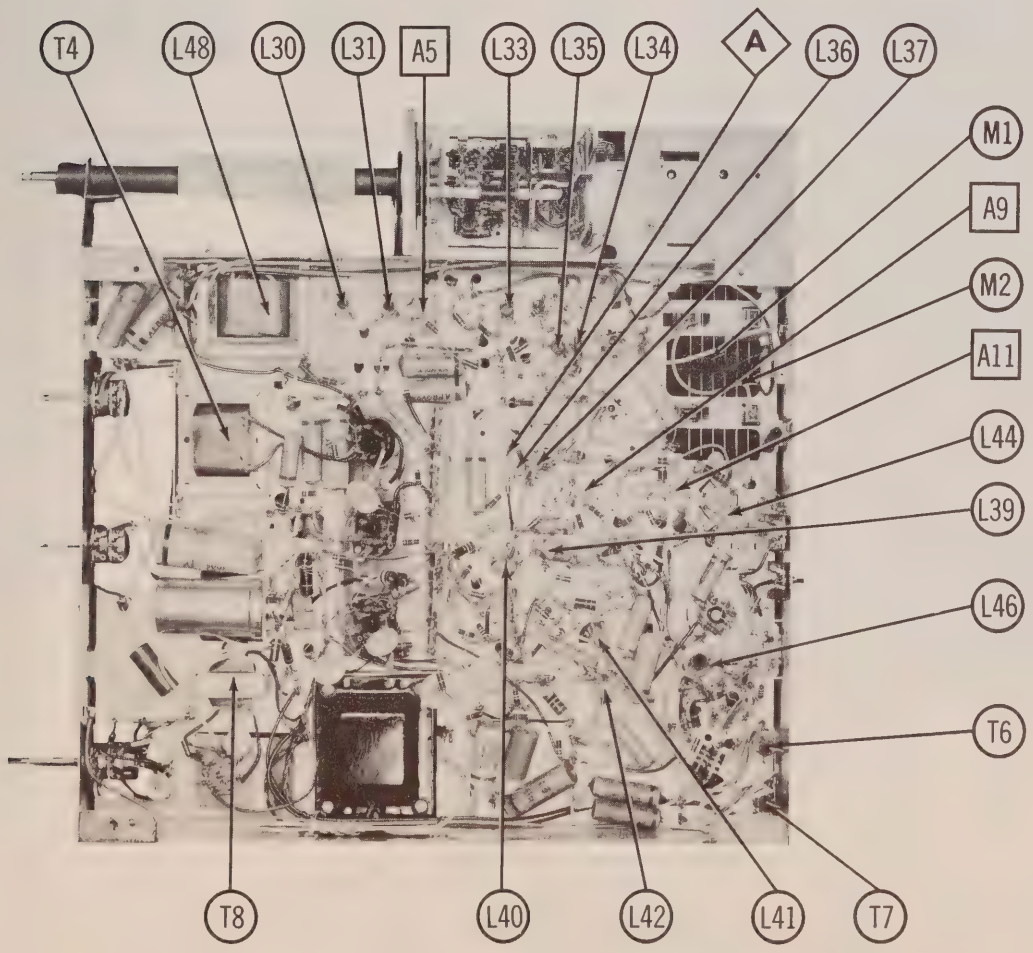
KEYSTONE EFFECT

Check T5 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

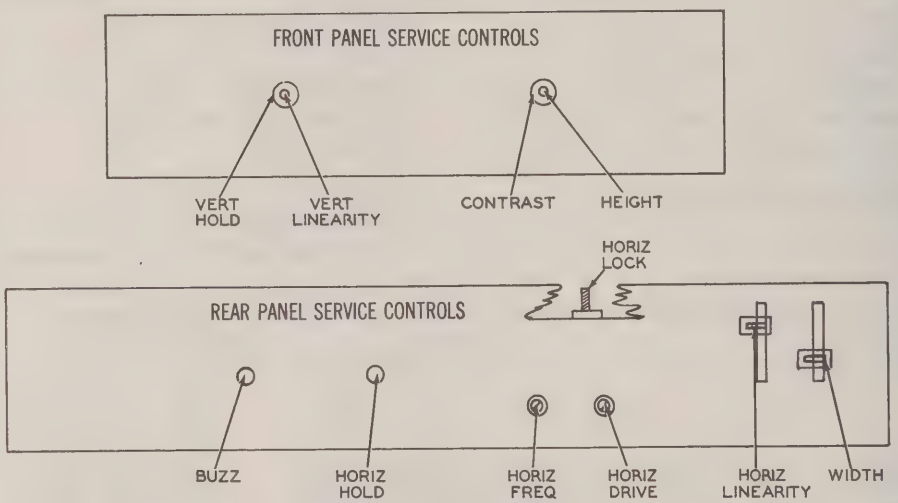
PICTURE TUBE SAFETY GLASS CLEANING

To clean safety glass remove 5 wood screws holding metal strip at the top of safety glass. Remove metal strip and safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION



HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Adjustment is located on top of chassis. Set the horizontal hold control at the center of its range and adjust the horizontal lock slug (L46) until picture synchronizes horizontally. (For location see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the buzz control located on rear apron of chassis for maximum volume and minimum buzz. If results are unsatisfactory, see alignment instructions of Page 6 & 7.

FUSES

One fuse is used for horizontal sweep circuit protection. (For location see tube placement chart).

CENTERING

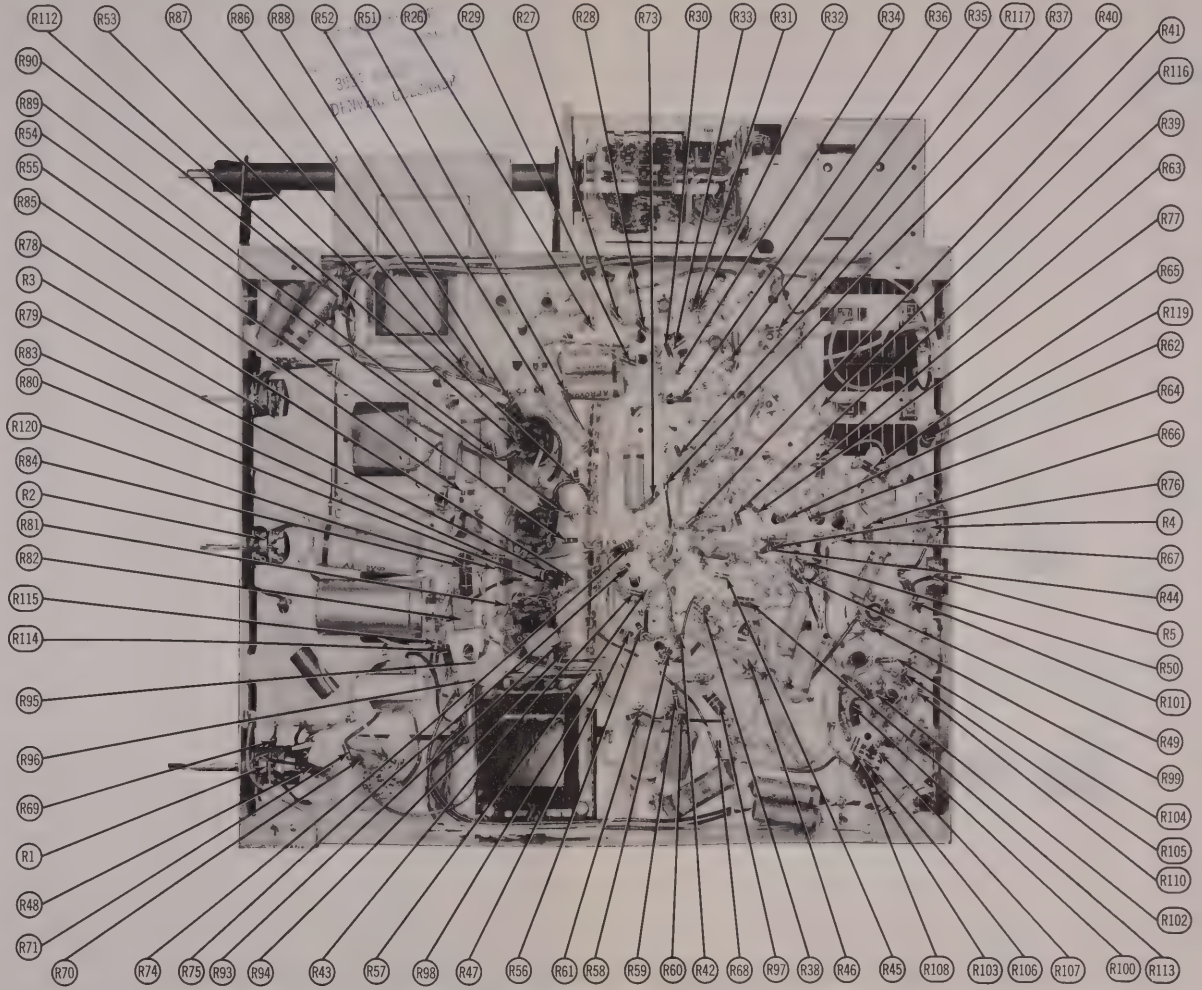
Centering is accomplished mechanically by means of a centering lever on the PM focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

BUILT-IN ANTENNA TUNING

Built-in antenna can be adjusted from rear of the cabinet. Adjust for a picture of maximum contrast and minimum ghosts.

DISASSEMBLY INSTRUCTIONS

1. Remove 7 push-on type control knobs from front panel.
2. Remove 9 metal screws from rear cover. Disconnect antenna leads. Remove rear cover.
3. Remove 1 metal screw from speaker plug.
4. Disconnect speaker plug from chassis. Disconnect picture tube socket, HV lead and deflection yoke socket.
5. Remove 1 metal screw from deflection yoke lead shielding.
6. Remove 4 chassis bolts. Remove chassis.
7. Remove 4 speaker nuts from each speaker. Remove speaker.
8. Remove 4 nuts and 4 metal screws from front tube mounting brackets.
9. Remove picture tube, deflection yoke and focus assembly.
10. Remove 2 screws from front tube mounting band.
11. Remove picture tube from deflection yoke and focus assembly.

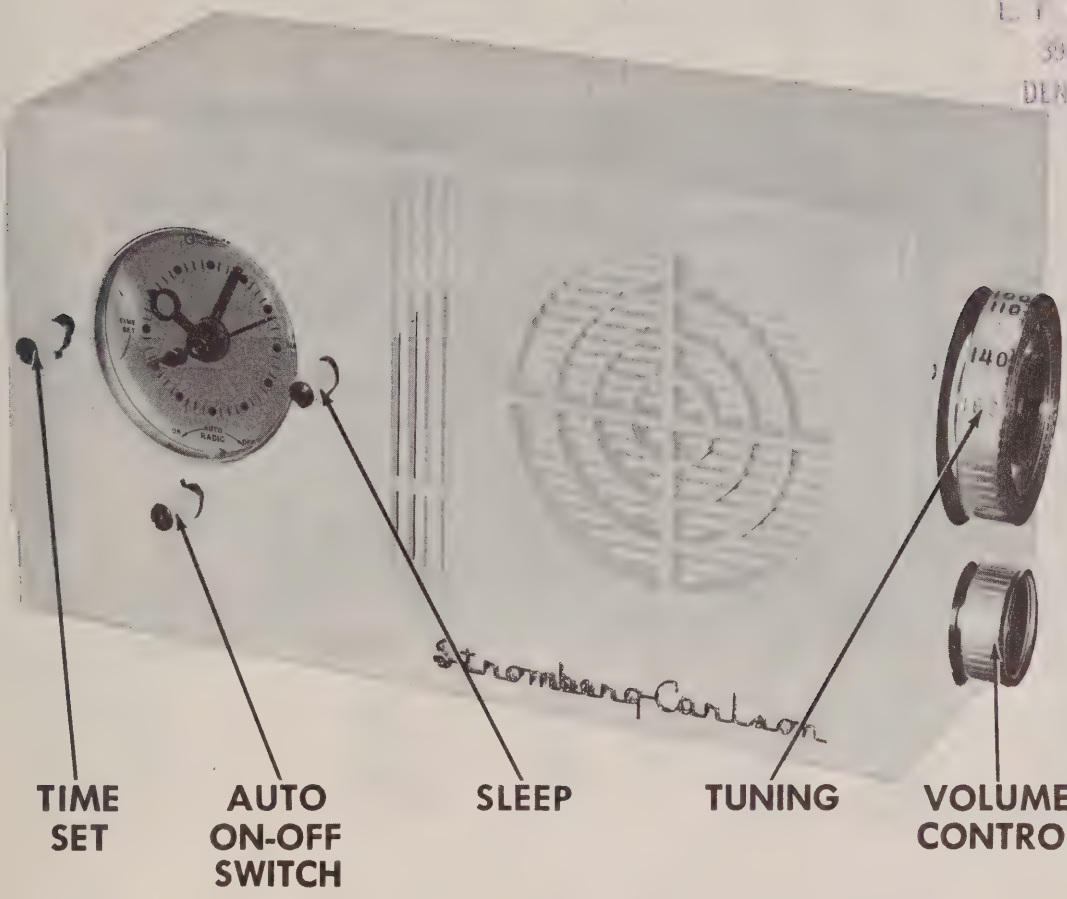


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

STROMBERG-CARLSON MODEL C-3

L. F. MCCLANAHAN
3824 MEADE ST
DENVER, COLORADO

STROMBERG-CARLSON
MODEL C-3



STROMBERG-CARLSON
MODEL C-3

TRADE NAME	Stromberg-Carlson Model C-3
MANUFACTURER	Stromberg-Carlson Co., Service Dept., 302 N. Goodman St., Rochester, N.Y.
TYPE SET	AC Operated AM Superheterodyne Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det. -AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC-60 Cycles — RATING .26 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~Mod)	Point of non-interference	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1625KC	Tuning gang fully open	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

STROMBERG-CARLSON
MODEL C-3

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		Stromberg-Carlson PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amplifier	12BA6	12BA6	7BK	
V3	Det. -AVC-AF Amp.	12AV6	12AV6	7BT	
V4	Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	6BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Stromberg-Carlson PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	50	150	111124	PRS150/50-50		BBRD5515		TCD49	TVA-2453	Red
B	50	150								Blue
C2	100		110694	SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C3	.05	400	110801	P488-05	DF-503	CUB4S5		PT405	4TM-S5	
C4	.005	400	110688	P688-005	D6-502	CUB6D5	D6-502	PT625	6TM-D5	
C5A	5000									
B	250		♦128202	♦PA-112-1	♦PC-70	♦112TM1	♦1406-01		♦T-3	
C										
C6	10000		110672	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C7	.05	400	110801	P488-05	DF-503	CUB4S5		PT415	4TM-S5	
C8	.1	400	110802	P488-1	DF-104	CUB4P1		PT401	4TM-P1	

♦ Items C5A, C5B, C5C, R7A, R7B are combined in one unit.
When replacing items separately C5B and C5C should total 250MMF.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Stromberg-Carlson PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	145186	Q13-133	A47-500K-Z	B-70	U-48	Volume
B	Shaft		Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1A

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Stromberg-Carlson PART No.	IRC PART No.	
R2	22KΩ	½	149109	BTS-22K	
R3	150Ω	½	28148	BTS-150	
R4	47KΩ	½	149111	BTS-47K	
R5	2.2Meg	½	149121	BTS-2.2Meg	
R6	10Meg	½	149125	BTS-10Meg	

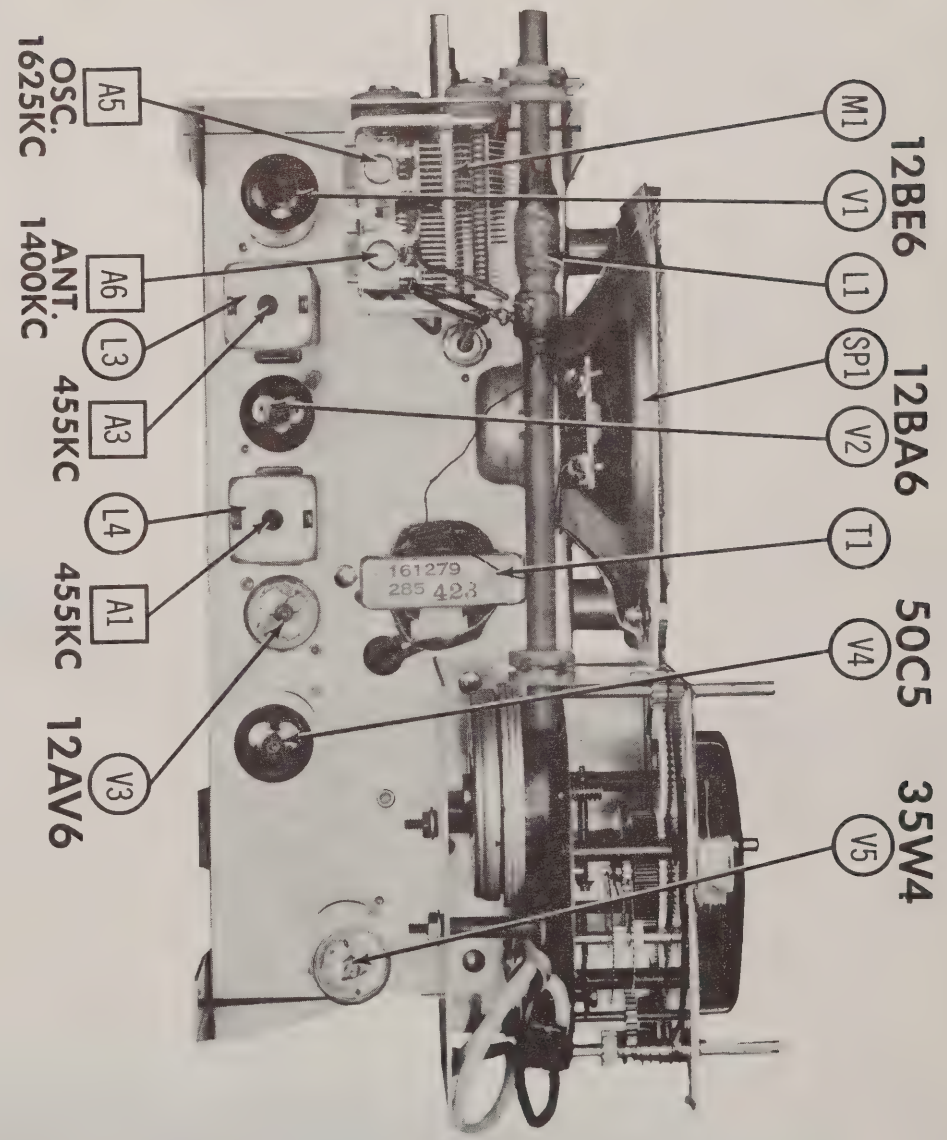
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Stromberg-Carlson PART No.	IRC PART No.	
R7A	500KΩ	½	♦128202	BTS-470K	
B	500KΩ	½		BTS-470K	
R8	150Ω	½	28148	BTS-150	
R9	1200Ω	1	149177	BTA-1200	

♦ Items R7A, R7B, C5A, C5B, C5C are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Stromberg-Carlson PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T1	2.3KΩ	3.4Ω	161279	A-3332	A-3025	S-12X	Z1101	26S58	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	Stromberg-Carlson PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.4Ω	155844	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

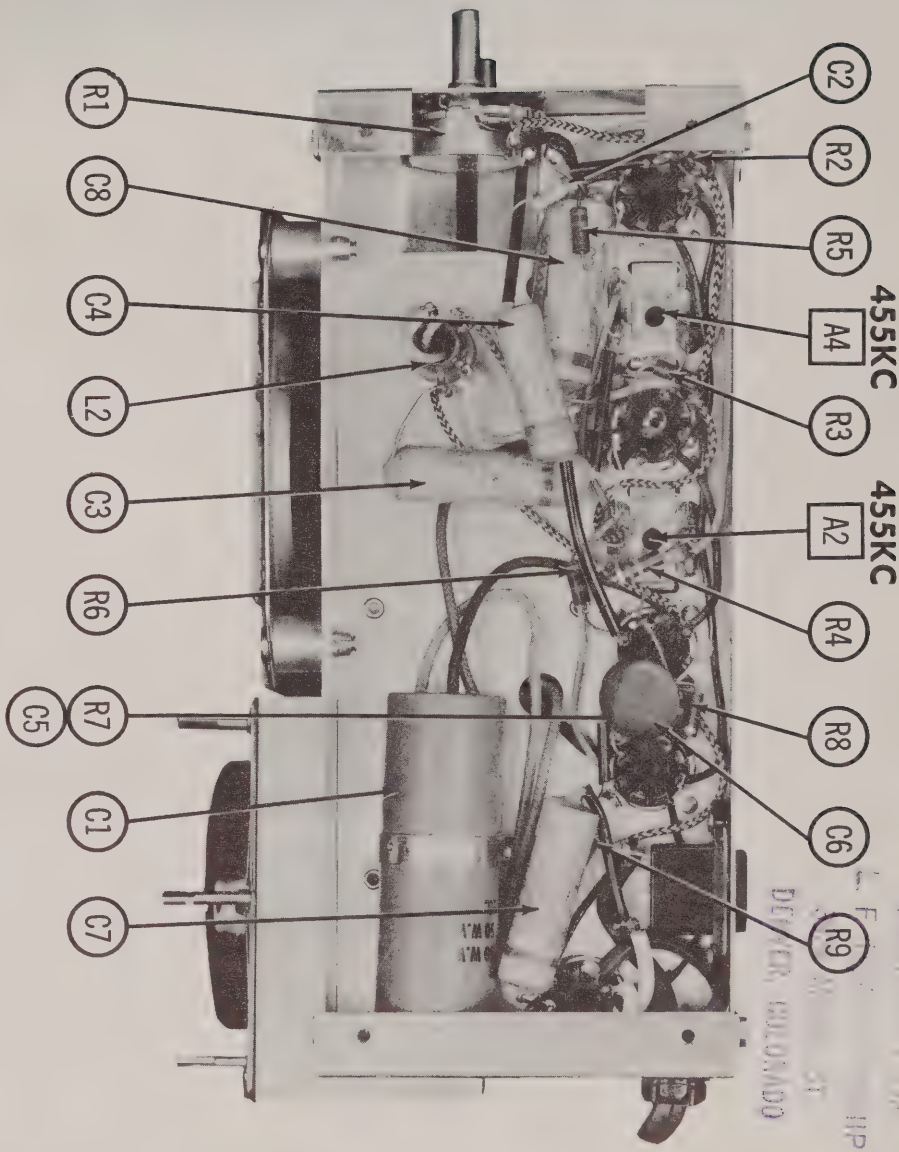
ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	Stromberg-Carlson PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.7Ω		139061				
L2	Osc. Coil	.7Ω	7Ω	114144	14-1060 *		71-OSC*	
L3	Input IF	15Ω	15Ω	114364	16-6758	BC-352	12-C1	
L4	Output IF	15Ω	15Ω	114453	16-6758	BC-355	12-C6	

* Drill new mounting hole.

MISCELLANEOUS

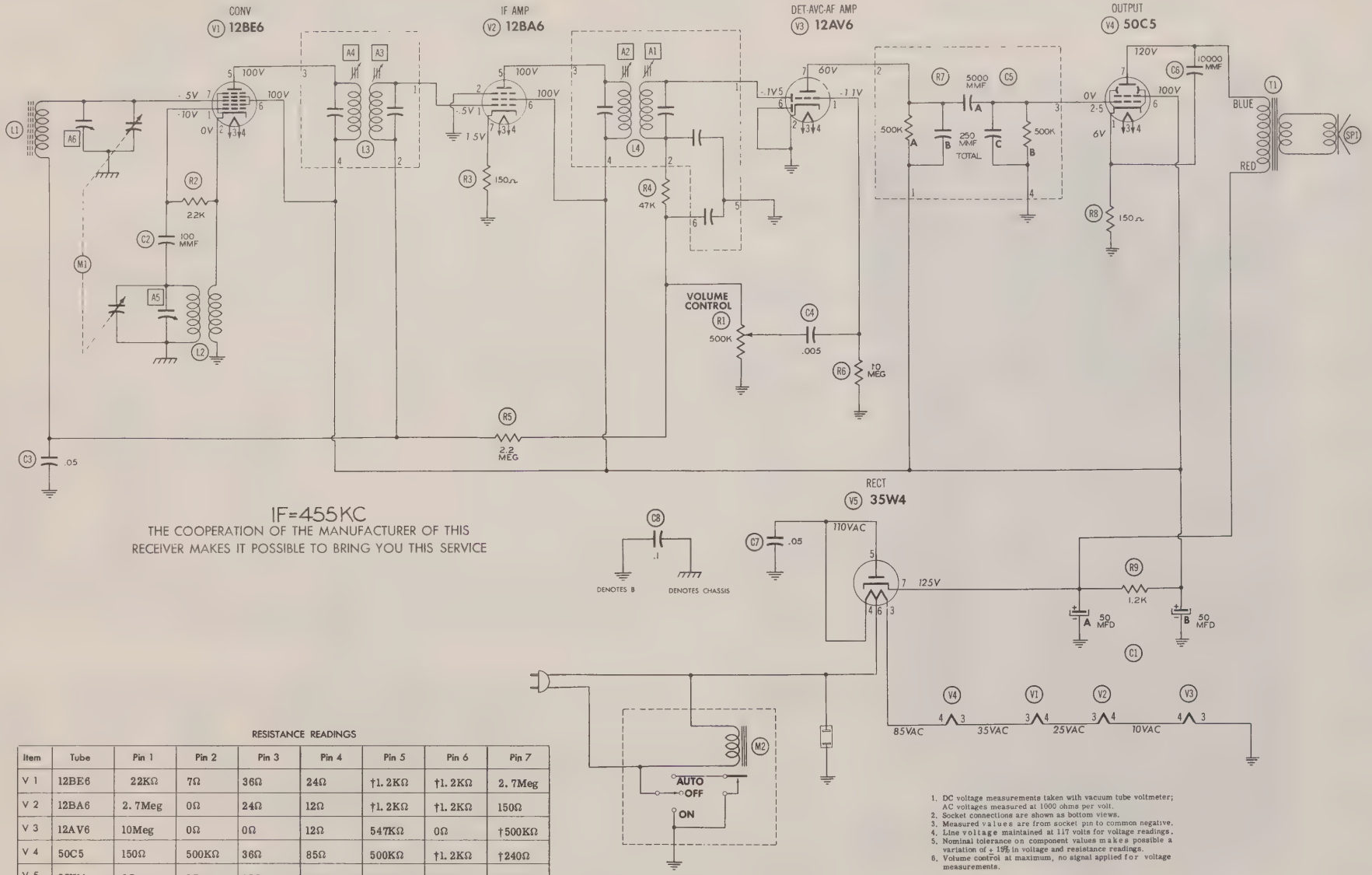
ITEM No.	PART NAME	Stromberg-Carlson PART No.	NOTES
M1	Tuning Cap.	110058	26-370MMF, 15-120MMF
M2A	Clock	140006	Gold Face
B	Clock	140008	Ivory Face
	Cabinet	108386	Black
	Cabinet	108387	Antique White
	Cabinet	108388	Coral
	Cabinet	108389	Green
	Cabinet	108390	Sandalwood
	Cabinet	108385	Citron
	Knob	134248	Clock
	Knob	134246	Volume
	Knob	134247	Tuning
	Clock Crystal	140011	
	Clock Shield	151181	

CHASSIS—BOTTOM VIEW



DENVER, COLORADO

STROMBERG-CARLSON MODEL C-3



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	7Ω	36Ω	24Ω	†1.2KΩ	†1.2KΩ	2.7Meg
V 2	12BA6	2.7Meg	0Ω	24Ω	12Ω	†1.2KΩ	†1.2KΩ	150Ω
V 3	12AV6	10Meg	0Ω	0Ω	12Ω	547KΩ	0Ω	†500KΩ
V 4	50C5	150Ω	500KΩ	36Ω	85Ω	500KΩ	†1.2KΩ	†240Ω
V 5	35W4	0Ω	0Ω	85Ω	117Ω	117Ω	110Ω	200KΩ

† MEASURED FROM PIN 7 OF V5

VOLTAGE AND RESISTANCE MEASUREMENTS TAKEN WITH CLOCK MOTOR DISCONNECTED

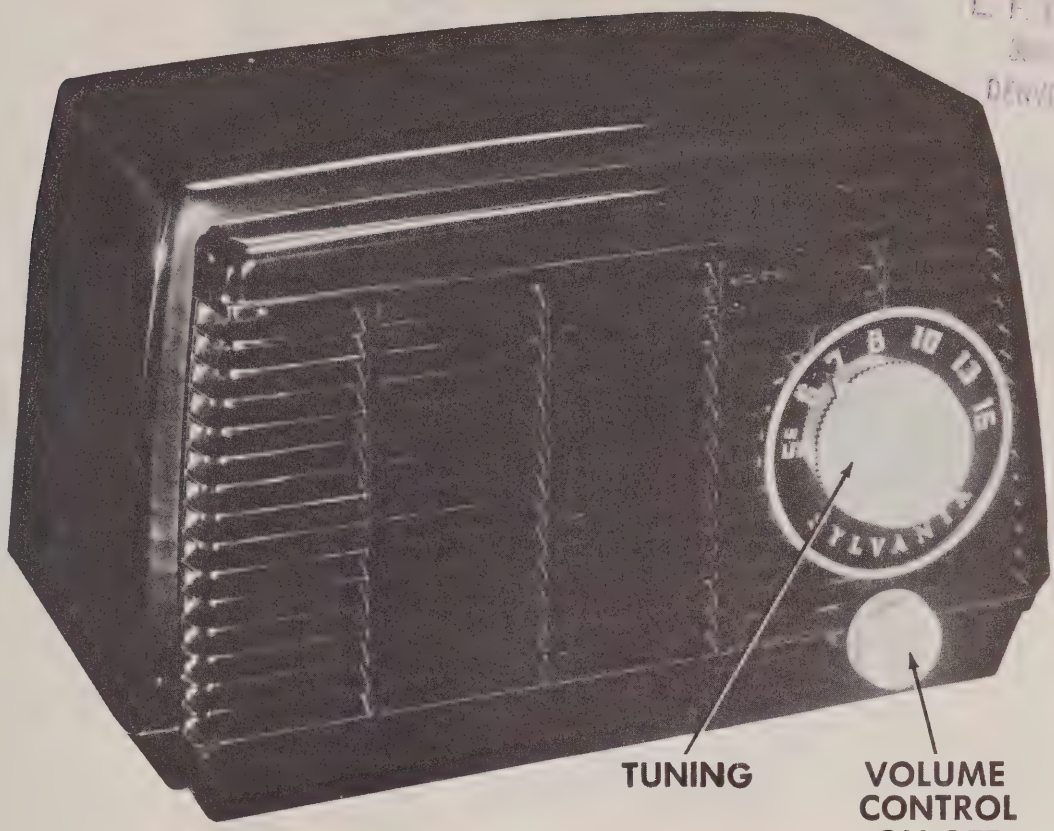
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1955

L F [illegible] HIP
[illegible] 0
DENVER [illegible] COLORADO

SYLVANIA MODELS 568
(Ch. 1-601-4), 5184 (Ch. 1-601-5)



SYLVANIA MODELS 568
(Ch. 1-601-4), 5184 (Ch. 1-601-5)

TRADE NAME	Sylvania Models 568 (Ch. 1-601-4), 5184 (Ch. 1-601-5)
MANUFACTURER	Sylvania Electric Prod., Inc., Radio & Tel. Div., 254 Rano St., Buffalo 7, N.Y.
TYPE SET	AC-DC Operated AM Superheterodyne Receiver
TUBES (Five)	Types 12SA7GT Conv., 12SK7GT IF Amp., 12SQ7GT Det.-AVC-AF Amp., 50A5 Output, 35Z4GT Rectifier
POWER SUPPLY	110-120 Volts AC-DC RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 8 (grid) of 12SA7GT (V1). Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	Direct	Loop	1650KC	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	"	1400KC	Tune to 1400KC signal	"	A6	"

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

SYLVANIA
MODEL 568 (Ch. 1-601-4)

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		SYLVANIA PART No.	STANDARD REPLACEMENT		
V1	Converter	12SA7GT	12SA7GT	8R	
V2	IF Amplifier	12SK7GT	12SK7GT	8N	
V3	Det.-AVC-AF Amp	12SQ7GT	12SQ7GT	8Q	
V4	Output	50A5	50A5	6AA	
V5	Rectifier	35Z4GT	35Z4GT	5AA	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SYLVANIA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	40	150	161-2009	PRS150/40-40		BBRD-4415		TCD-48	TVA-2445	
B	40	150								
C2	.047	200	160-04147	P288-047	DF-503	PJ2S47		PT4147	2TM-S47	
C3A	220									
B	*2000									
C	5000		190-0009		PC-165				DP-1	Note 1
D	250									
E										
C4	.022	400	160-06122	P488-022		CUB4S22		PT4122	4TM-S22	
C5	.047	400	160-04147	489ZX-047	DF-503	CUB4S47		PT4147	4TM-S47	
C6	.047	400	160-04147	489ZX-047	DF-503	CUB4S47		PT4147	4TM-S47	

* In chassis 1-601-5, item C3B becomes a 5000MMF (Sylvania part number becomes 190-0017 for C3).
Note 1. Items C3A, C3B, C3C, C3D, C3E, R4A, R4B and R4C are combined in one unit.
When replacing items separately items C3D and C3E should total 250MMF.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SYLVANIA PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	500KΩ	½	152-0026	Q13-133	A47-500K-Z	AB-60	U-48	Volume - Note
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R1A
C	Switch		Not Req.	76-1	SWE-12	KB-1	US-26	Attach to R1A

Note. Model 5184 uses an alternate control part #152-0023.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SYLVANIA PART No.	IRC PART No.	
R2	22KΩ	½	181-0223	BTS-22K	
R3	2.2Meg	½	181-0225	BTS-2.2Meg	
R4A	6.8Meg	½	♦190-0009	BTS-6.8Meg	Note 1
B	470KΩ	½		BTS-470K	
C	470KΩ	½		BTS-470K	

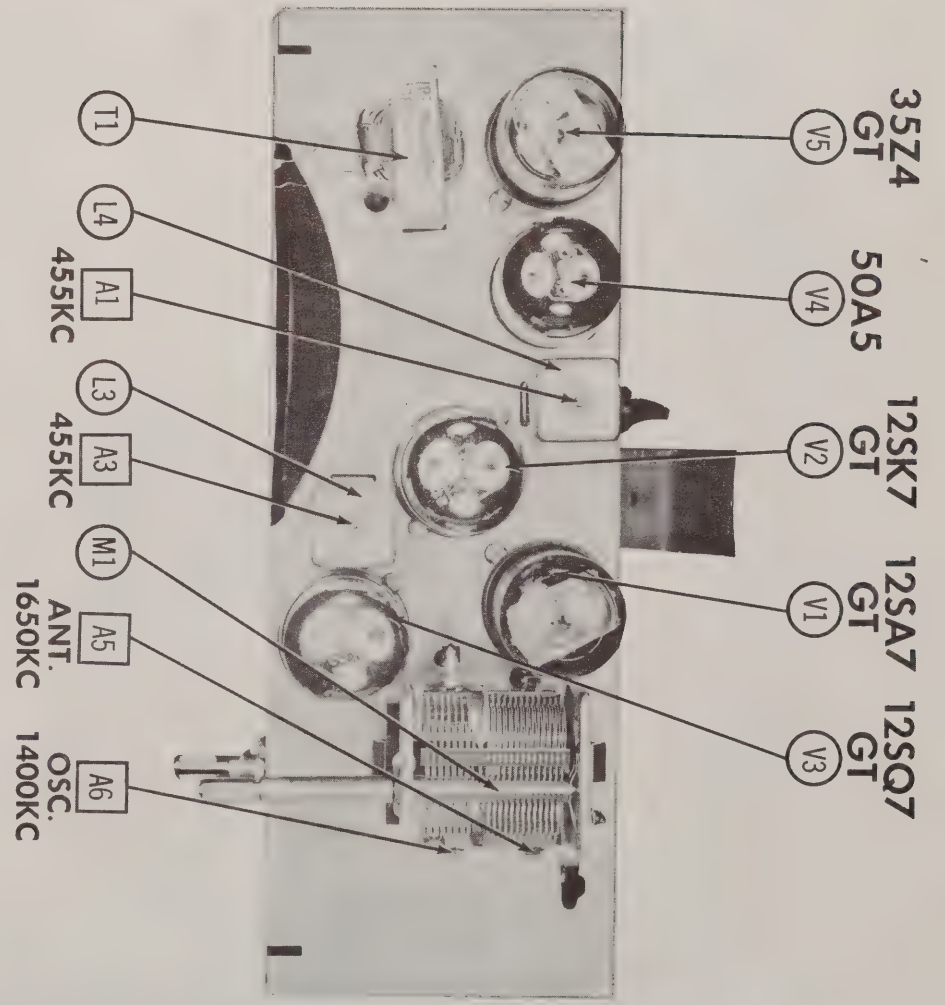
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	SYLVANIA PART No.	IRC PART No.	
C5	150Ω	½	181-0151	BTS-150	
C6	1200Ω	1	181-0122	BTA-1200	
R7	25Ω	1	189-0013		Note 2

Note 1. Model 5184 uses a 10Meg resistor in this application.
Note 2. Model 5184 uses a 24Ω resistor (part number 187-0025) in this application.
♦ Items R4A, R4B, R4C, C3A, C3B, C3C, C3D and C3E are combined in one unit.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SYLVANIA PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	
T1	2.4KΩ	3.4Ω	143-0032	A-3332	A-3025	S-12X	Z1101	26S58	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4"	PM	3.4Ω	539-0403	ST-113 Mod. P4-X	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	SYLVANIA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	2.9Ω		582-0020 †				Includes cabinet back
L2	Osc. Coil	1.4Ω	8Ω	113-0029				
L3	Input IF	14Ω	13Ω	121-0026 *	16-6758	BC-352	12-C1	
L4	Output IF	13Ω	14Ω	121-0026 *	16-6758	BC-353	12-C2	

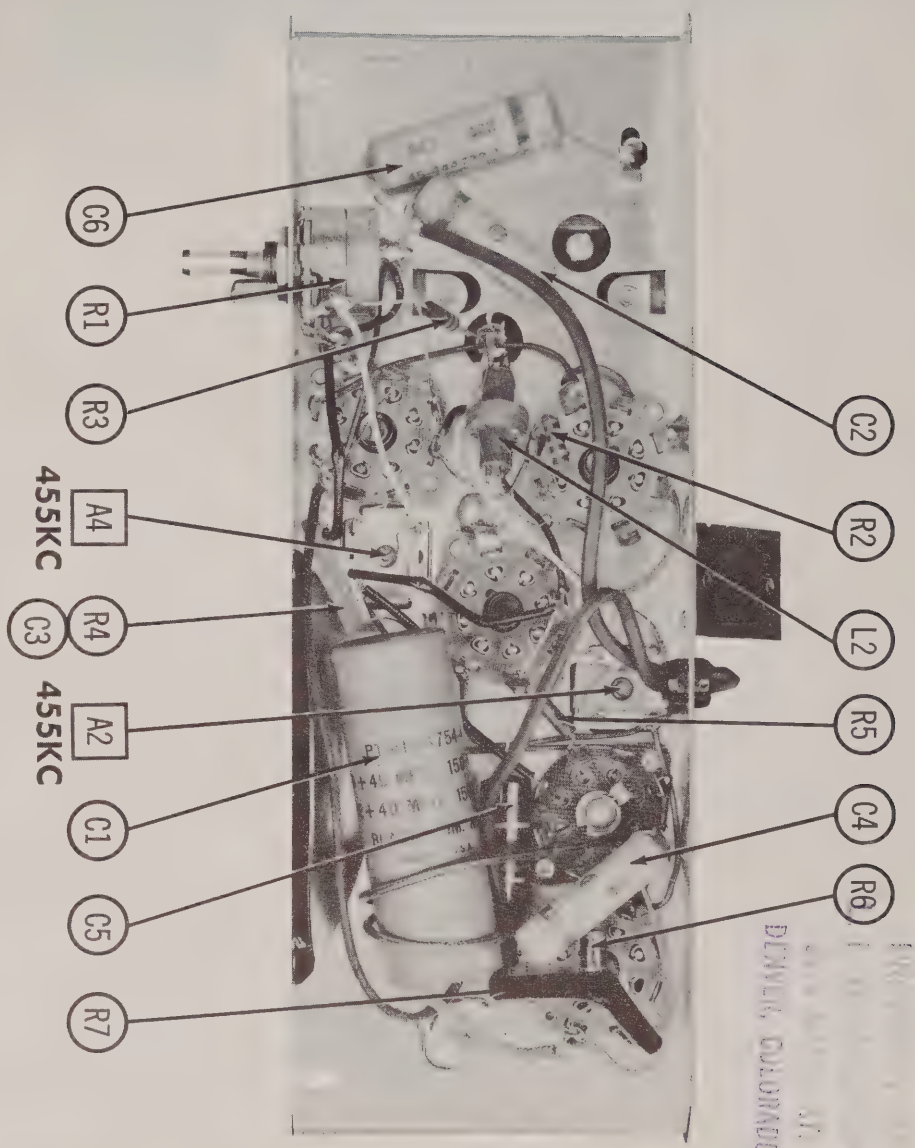
* Alternate part #121-0016.
† Model 5184 uses part #582-0021 in this application.

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M1	Tuning Cap.	170-0014 *	2 Gang (19-380MMF, 11-100MMF)
	Cabinet	813-0043	Black - Model 568
	Cabinet	813-0045	Green - Model 568
	Cabinet	813-0044	Ivory - Model 568
	Cabinet	813-0046	Red- Model 568
	Cabinet	813-0056	Black - Model 5184
	Cabinet	813-0058	Green - Model 5184
	Cabinet	813-0057	Ivory - Model 5184
	Cabinet	813-0059	Red- Model 5184
	Knob	740-0058	On-off-volume - Model 568
	Knob	740-0037	On-off-volume - Model 5184
	Knob	740-0059	Tuning - Model 568
	Knob	722-0037	Tuning - Model 5184
	Name Plate	818-0018	Sylvania - Model 5184

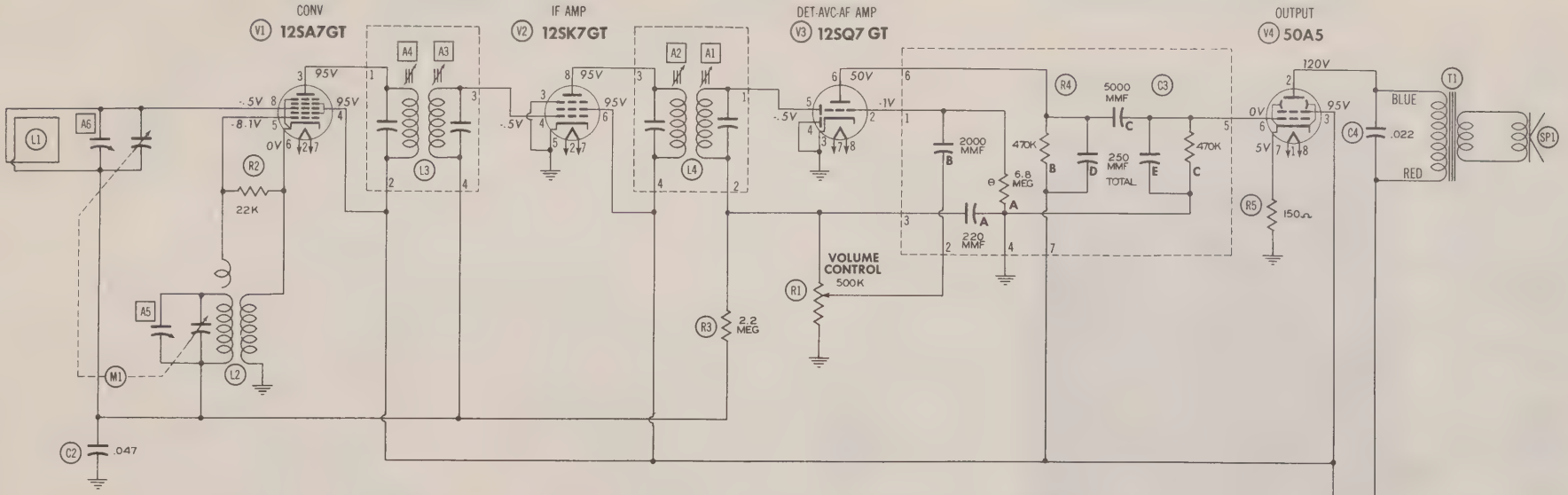
* Model 5184 uses part #170-0017 in this application.

CHASSIS—BOTTOM VIEW



SYLVANIA
MODEL 568 (Ch. 1-601-4)

SYLVANIA
MODEL 568 (Ch. 1-601-4)



IF=455KC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SA7GT	0Ω	24Ω	†1. 2KΩ	†1. 2KΩ	22KΩ	. 6Ω	12Ω	2. 7Meg
V 2	12SK7GT	0Ω	24Ω	0Ω	2. 7Meg	0Ω	†1. 2KΩ	36Ω	†1. 2KΩ
V 3	12SQ7GT	0Ω	6. 8Meg	0Ω	0Ω	500KΩ	†470KΩ	0Ω	12Ω
V 4	50A5	85Ω	†200Ω	†1. 2KΩ	INF	INF	470KΩ	150Ω	36Ω
V 5	35Z5GT	INF	85Ω	INF	INF	140Ω	†1. 2KΩ	117Ω	70KΩ

† MEASURED FROM PIN 8 OF V5

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

© Howard W. Sams & Co., Inc. 1955

IMPORTANT FILING NOTICE

The contents for this envelope will be found among the last folders in this complete set of folders . . . *unless* it has been purchased as part of a *complete* volume of PHOTOFACTS assembled in a DeLuxe Binder.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

PROF
L. F. P
3924 MEADE ST
DENVER, COLORADO

MODEL 2D2431C

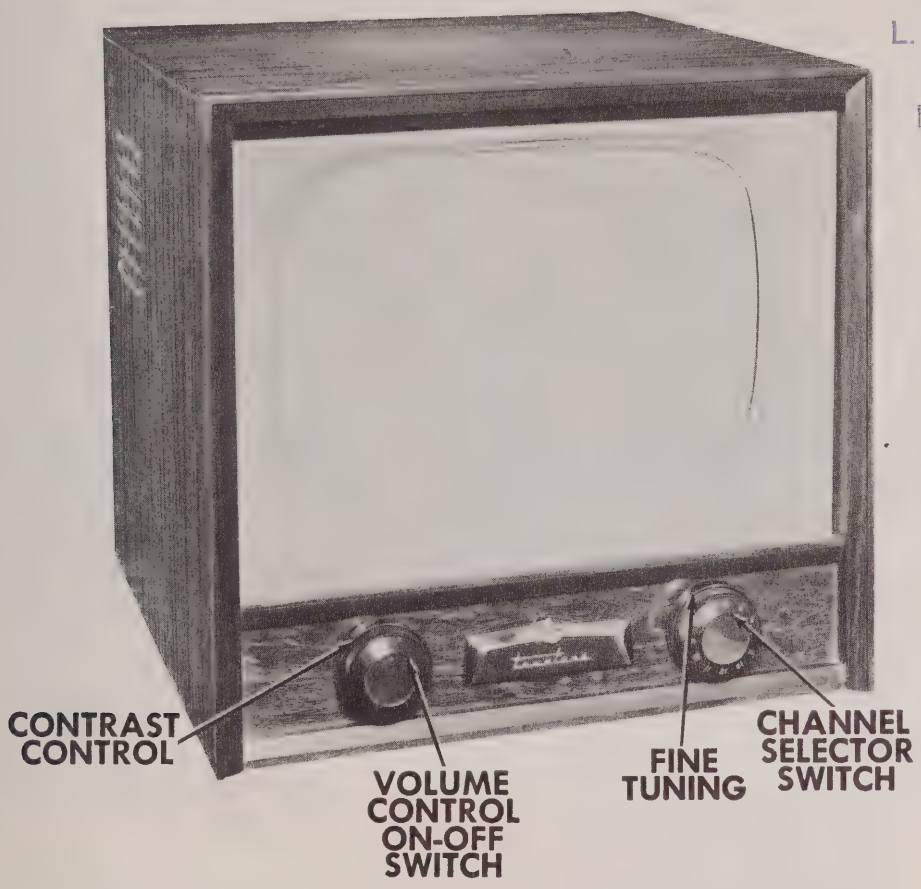
TRUETONE
MODEL 2D2431C

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

TRUETONE MODEL 2D2431C

PRINT
L. F. BLANKENSHIP
DENVER, COLORADO



TRUETONE MODEL 2D2431C

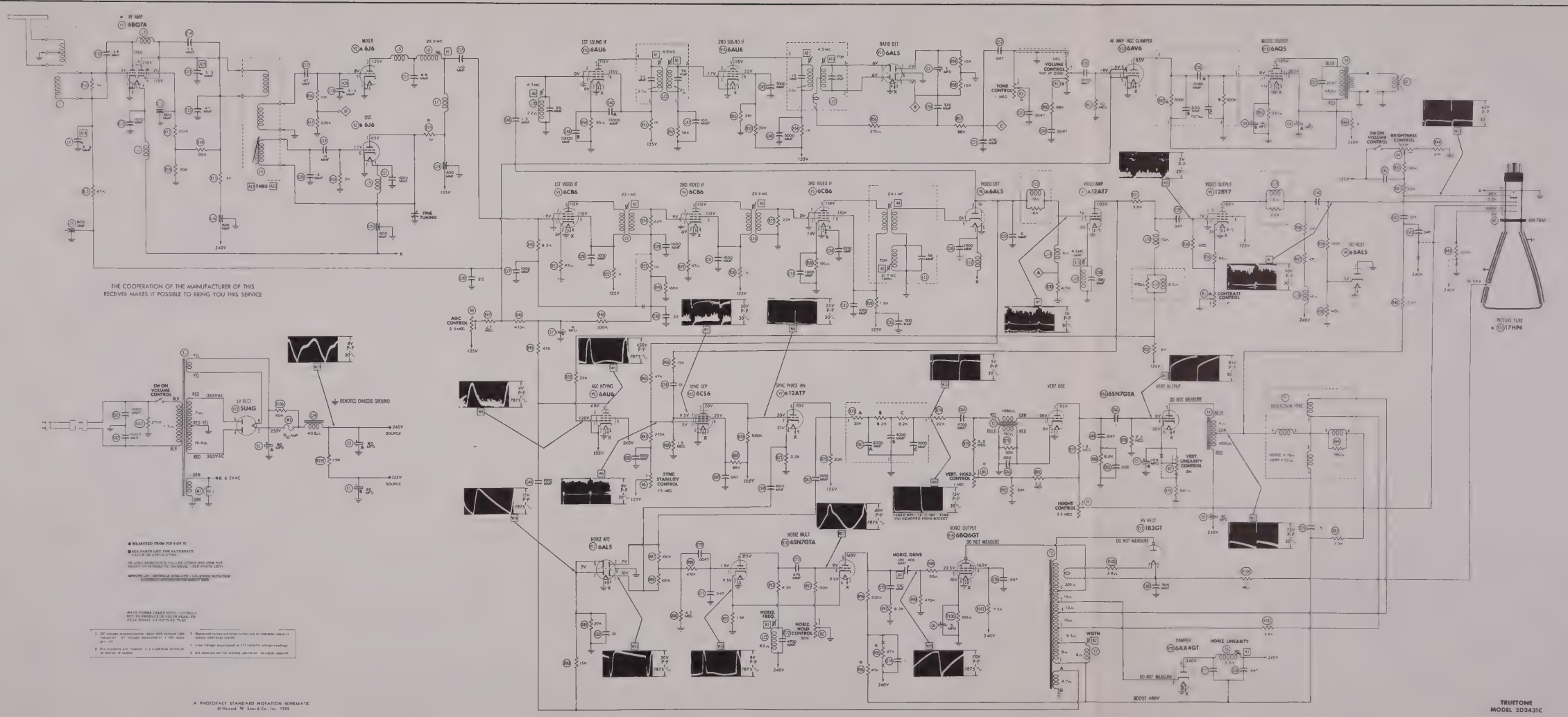
TRADE NAME	Truetone Model 2D2431C
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Television Receiver
TUBES	Twenty-three
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING 1.52 Amp. @ 117 Volts AC
TUNING RANGE—	Channels 2 thru 13, Video IF 26.2MC, Sound IF 21.7MC (Intercarrier)

INDEX

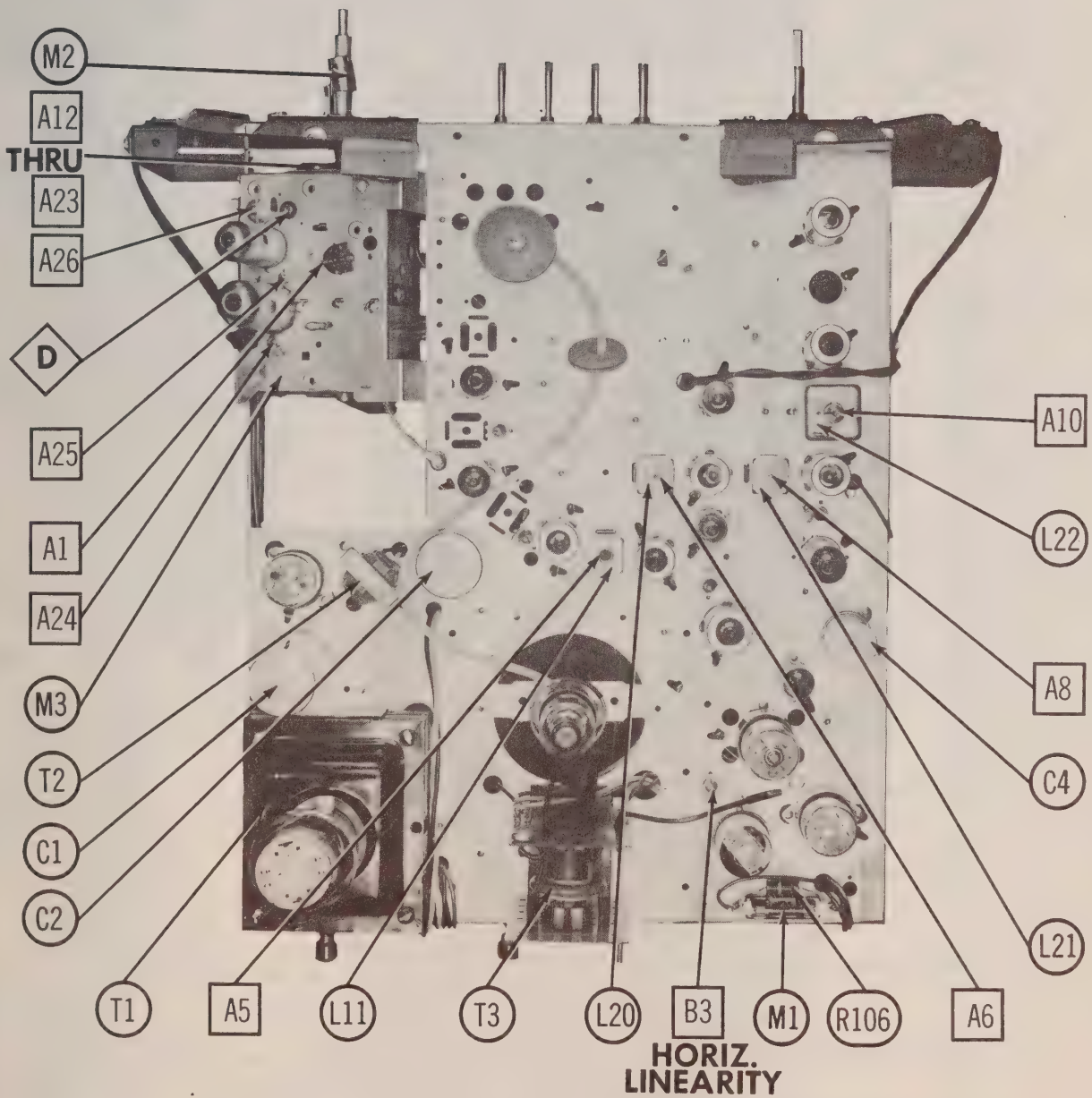
Alignment Instructions 6, 7
Disassembly Instructions 18
Horizontal Sweep Circuit Adjustments 11
Parts List and Descriptions ..... 13 thru 16
Photographs
Cabinet-Rear View 11
Capacitor Identification 4, 9
Chassis-Top View 3
RF Tuner 10
Resistor Identification 19, 20
Photographs (Cont)
Trans., Inductor & Alignment Identification 17
Resistance Measurements 8
Servicing in the Field 18
Schematic 2
Trouble Shooting Aids 12, 17
Tube Failure Check Chart 5
Tube Placement Chart (Bottom View) 8
Tube Placement Chart (Top View) 5

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
"Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

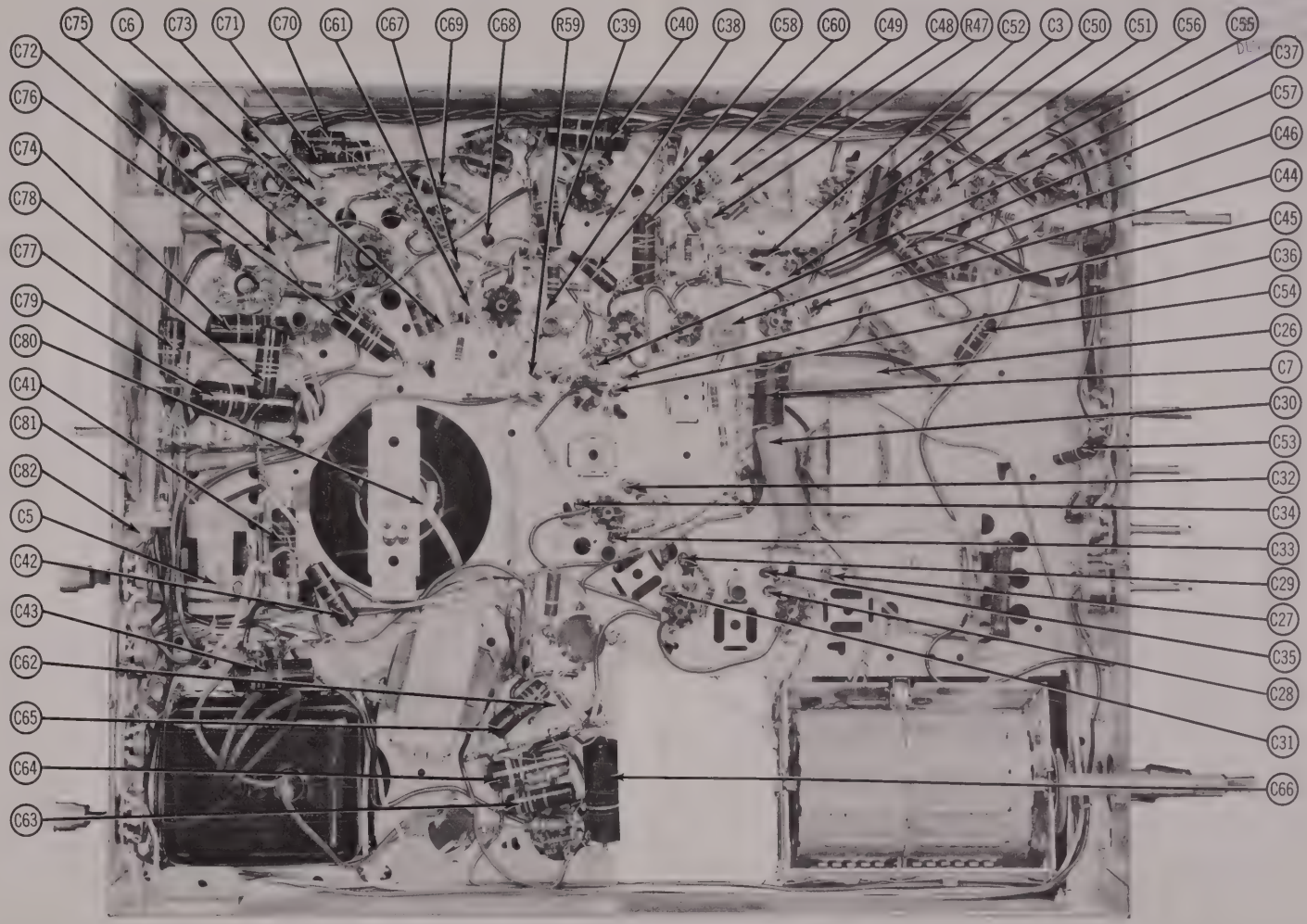


TRUETONE
MODEL 2D2431C



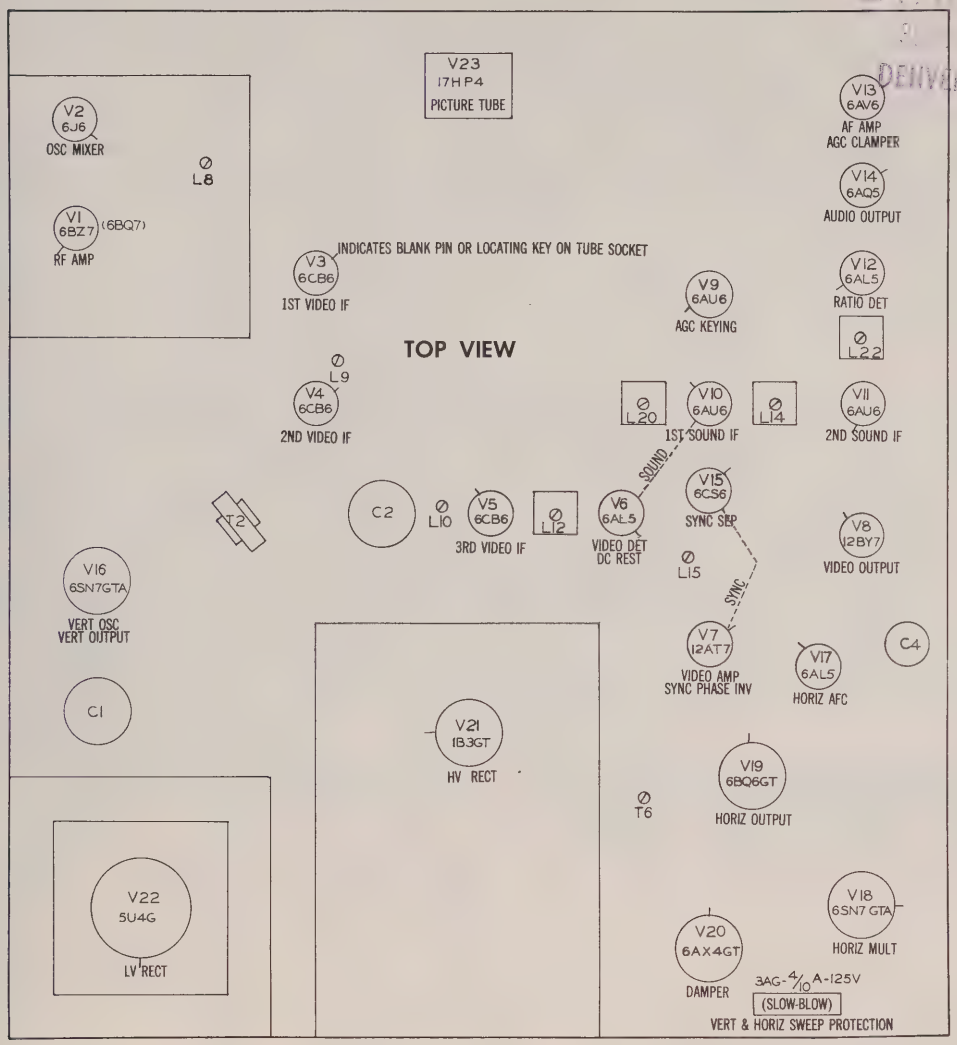
CHASSIS TOP VIEW

SET 271 FOLDER 16



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

TUBE PLACEMENT CHART



DENVER, COLORADO

TRUETONE
MODEL 2D2431C

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **V22, Fuse (M1)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V2, V3, V4, V5, V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V7, V8, V9, V23**
Has pic, no sound - **V10, V11, V12, V13, V14**
Overloaded picture - **V9, V13**

SYNC FAILURE
No vert. sync - **V7, V16**
No horiz. sync - **V7, V17, V18**
No vert. or horiz. sync - **V7, V15**

SWEEP FAILURE
No raster, has sound - **V18, V19, V20, V21, V23**
No vertical deflection - **V16**
Poor vert. linearity or foldover - **V16**
Poor horiz. linearity or foldover - **V18, V19, V20**
Narrow picture - **V18, V19, V20, V21, V22**
Vert. off freq. - **V7, V16**
Horiz. off freq. - **V7, V17, V18**

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V18) from its socket.

VIDEO IF ALIGNMENT

Remove the oscillator mixer tube from its socket and replace it with a 6J6 with pin 1 removed. This will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 4.5V battery to junction of R48 and R49. Connect the positive lead to chassis.
Connect a 5000MMF capacitor across the VTVM DC input.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Direct	High side to an ungrounded tube shield floating over osc. mixer tube (V2). Low side to chassis.	25.2MC (Unmod)	Any	DC probe thru 22KΩ to point Ⓐ. Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	23.1MC	"	"	A2	"
3.	"	"	25.9MC	"	"	A3	"
4.	"	"	24.1MC	"	"	A4	"
5.	"	"	21.7MC	"	"	A5	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Direct	High side to an ungrounded tube shield floating over osc.-mixer tube (V2). Low side to chassis.	24MC (10MC Swp)	21.7MC 23.0MC 23.5MC 25.25MC 26.2MC	Any	Vert. Amp. thru 22KΩ to point Ⓐ. Low side to chassis.		Check for response curve similar to Fig. 1. If necessary retouch A1 thru A4 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.001MFD	High side to point Ⓐ. Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point Ⓑ. Common to chassis.	A6, A7, A8, A9	Adjust for maximum deflection.
8.	"	"	"	"	DC probe to point Ⓒ. Common to chassis.	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.	.001MFD	High side to point Ⓐ. Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. to point Ⓑ. Low side to chassis.	A6, A7, A8, A9	Disconnect stabilizer capacitor (C3). Adjust for response curve similar to Fig. 2.
8.	"	"	"	"	"	Vert. Amp. to point Ⓒ. Low side to chassis.	A10	Reconnect stabilizer capacitor (C3). Adjust so that 4.5MC occurs at center of crossover lines as shown in Fig. 3. SLIGHTLY retouch A9 for maximum amplitude and straightness of crossover lines.

4.5MC TRAP ALIGNMENT

Set contrast control at maximum.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.001MFD	High side to point Ⓐ. Low side to chassis.	4.5MC (Unmod)	Any	DC probe to pin 2 of picture tube. Common to chassis.	A11	Short pin 1 (grid) of 6CB6 (V5) to chassis. Adjust for MINIMUM deflection.

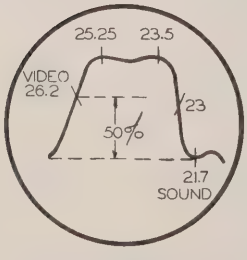


FIG. 1

FIG. 2

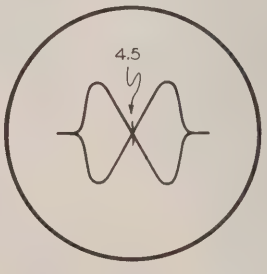


FIG. 3

ALIGNMENT INSTRUCTIONS (cont)

OSCILLATOR ALIGNMENT

Remove dummy oscillator-mixer tube and replace the original 6J6 in its socket.
Move the negative lead of the 4.5V battery to the junction of R20 and C27.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point (A). Low side to chassis.	A12	Adjust to place sound marker in trap notch as in Fig. 4. Video marker should be at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A13	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A14	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A15	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A16	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A17	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A18	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A19	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A20	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A21	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A22	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A23	

PROPERTY OF
L. F. BLANKENSHIP
2034 MEADE ST.
DENVER, COLORADO

RF AND MIXER ALIGNMENT

Remove the 4.5 volt bias battery and connect the negative lead of a 1.5 volt battery to the ungrounded side of C9. Connect the positive lead to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to point (D). Low side to chassis.	A24, A25, A26	Adjust for response similar to Fig. 5.
12.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 5. If markers fall below 70% on any channel make compromise adjustments of A24, A25 and A26 with channel switch set to that channel. Recheck all other channel to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

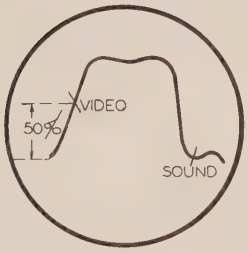


FIG. 4

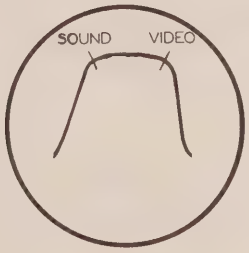
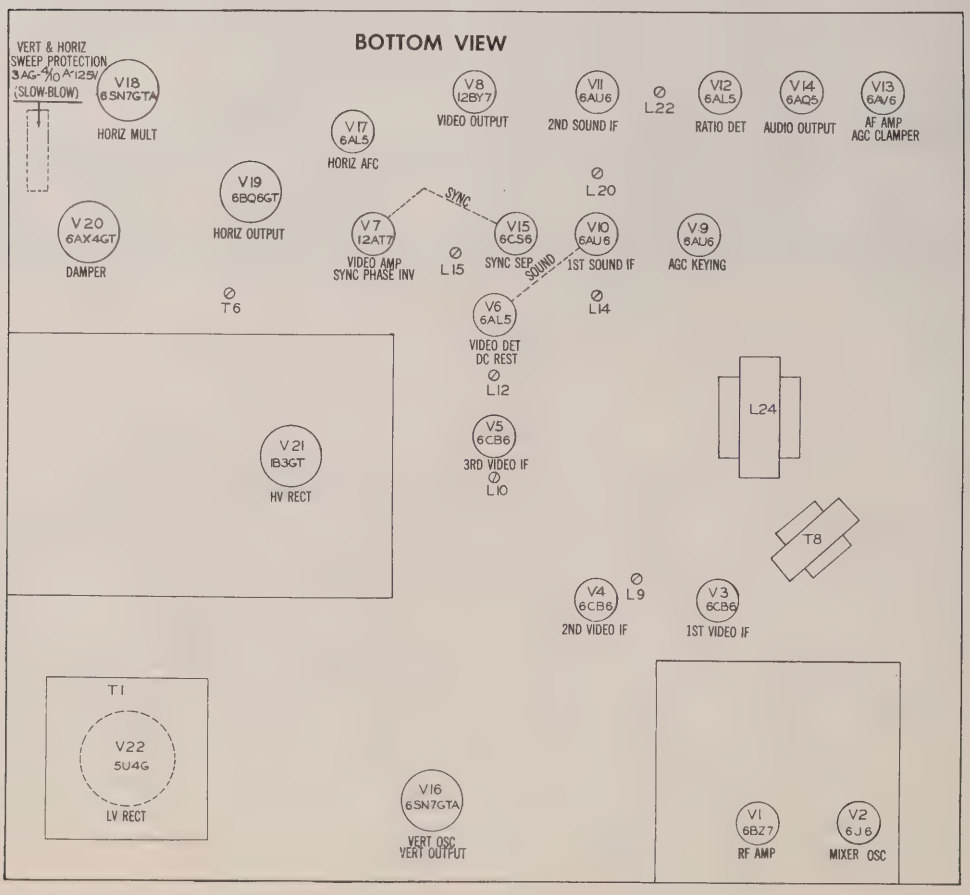


FIG. 5

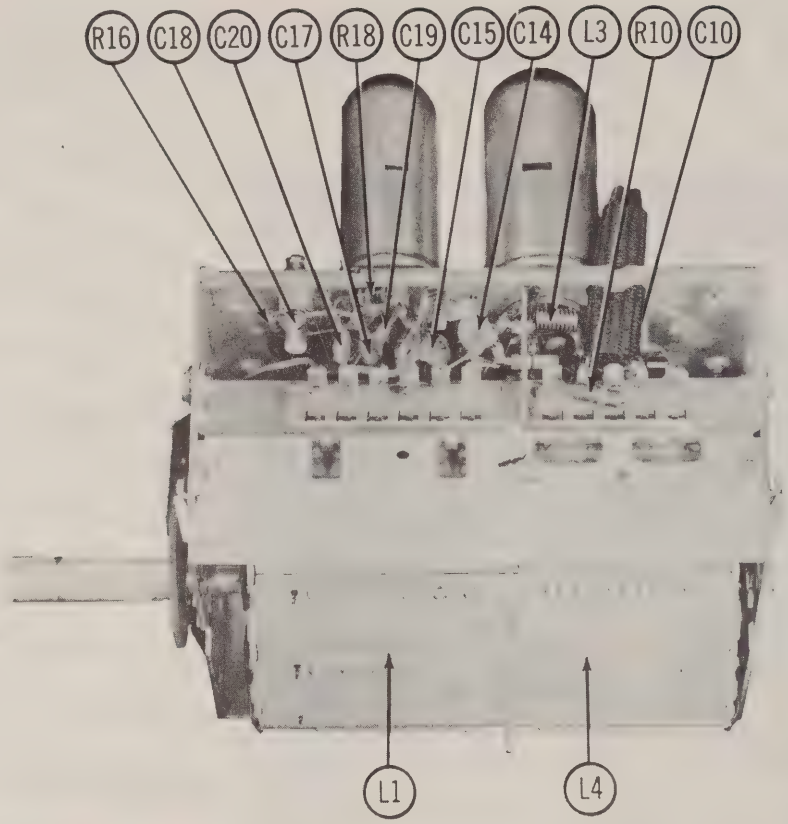
RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BZ7	INF	750KΩ	0Ω	. 1Ω	0Ω	†1. 5KΩ	†190KΩ	INF	0Ω
V 2	6J6	†17KΩ	†1. 7KΩ	. 1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 3	6CB6	100KΩ	47Ω	0Ω	. 1Ω	†2. 7KΩ	†2. 7KΩ	0Ω		
V 4	6CB6	100KΩ	47Ω	0Ω	. 1Ω	†2. 7KΩ	†2. 7KΩ	0Ω		
V 5	6CB6	. 3Ω	180Ω	0Ω	. 1Ω	†3. 2KΩ	†3. 2KΩ	0Ω		
V 6	6AL5	1Meg	4. 7KΩ	. 1Ω	0Ω	. 2Ω	0Ω	0Ω		
V 7	12AT7	†8. 8KΩ	4. 7KΩ	. 3Ω	0Ω	0Ω	†2. 2KΩ	†820KΩ	2. 2 KΩ	. 1Ω
V 8	12BY7	150Ω	1Meg	0Ω	. 1Ω	. 1Ω	0Ω	†4KΩ	†1. 7KΩ	0Ω
V 9	6AU6	†36KΩ	†1. 7KΩ	0Ω	. 1Ω	420KΩ	†40Ω	†1. 7KΩ		
V 10	6AU6	2. 2Ω	0Ω	. 1Ω	0Ω	†2. 7KΩ	†2. 7KΩ	100Ω		
V 11	6AU6	56KΩ	0Ω	. 1Ω	0Ω	†2. 7KΩ	†30KΩ	0Ω		
V 12	6AL5	INF	INF	. 1Ω	0Ω	10KΩ	0Ω	10KΩ		
V 13	6AV6	10Meg	0Ω	. 1Ω	0Ω	750KΩ	750KΩ	500KΩ		
V 14	6AQ5	500KΩ	330Ω	0Ω	. 1Ω	†1. 5KΩ	†1KΩ	500KΩ		
V 15	6CS6	50KΩ	0Ω	. 1Ω	0Ω	†820KΩ	†70KΩ	1. 5Meg		
V 16	6SN7GTA	4Meg	▲2. 5Meg	190Ω	2. 2Meg	▲5KΩ	3KΩ	0Ω	. 1Ω	
V 17	6AL5	4. 8Meg	4. 8Meg	. 1Ω	0Ω	11KΩ	0Ω	11KΩ		
V 18	6SN7GTA	5. 2Meg	†4. 4KΩ	1. 5KΩ	190KΩ	†300KΩ	1. 5KΩ	. 1Ω	0Ω	
V 19	6BQ6GT	INF	0Ω	470KΩ	†7. 5KΩ	470KΩ	8. 2KΩ	. 1Ω	100Ω	TOP CAP ▲19Ω
V 20	6AX4GT	†40Ω	INF	140KΩ	†47KΩ	†55Ω	100KΩ	. 1Ω	0Ω	
V 21	1B3GT		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP ▲340Ω
V 22	5U4G	INF	50KΩ	INF	21Ω	INF	19Ω	INF	50KΩ	
V 23	17HP4	0Ω	1. 1Meg	PIN 6 100KΩ	PIN 10 3. 3KΩ	PIN 11 †230KΩ	PIN 12 . 1Ω			

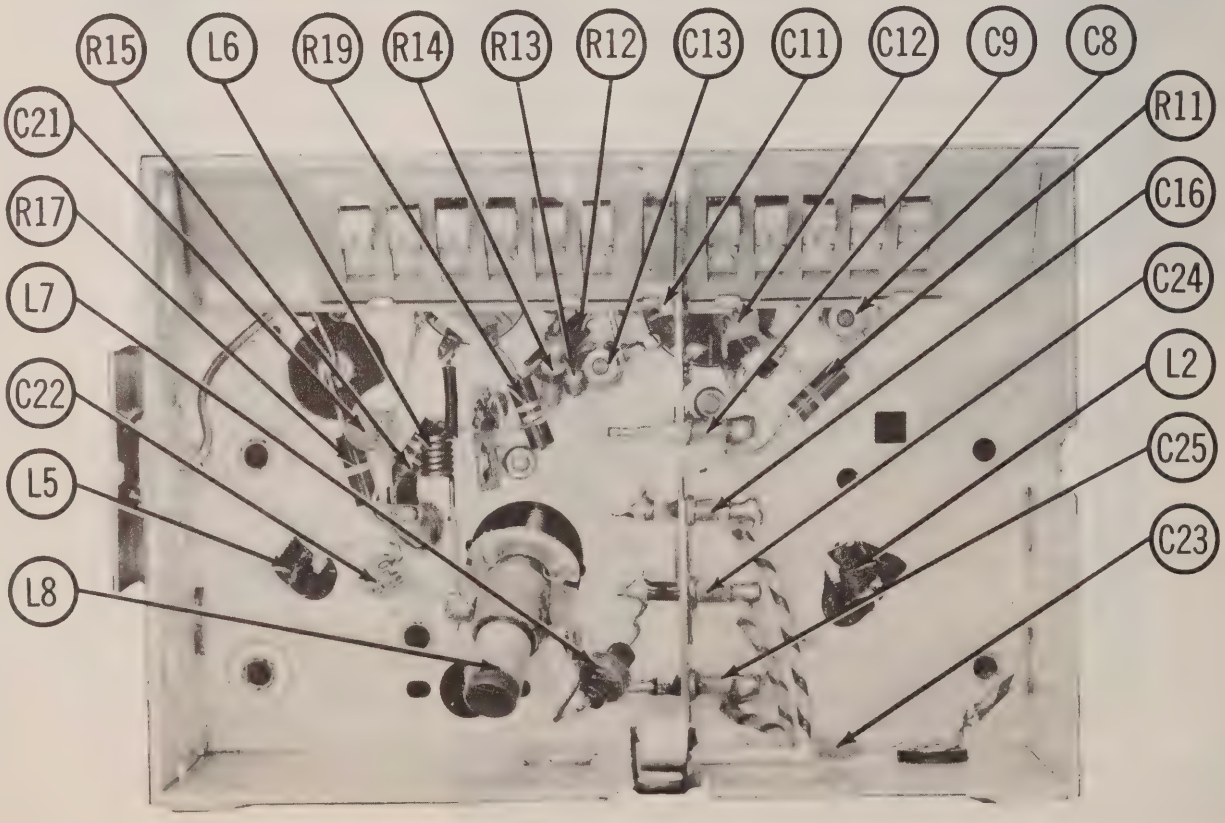
† MEASURED FROM PIN 2 OF V22
▲ MEASURED FROM PIN 3 OF V20



TUBE PLACEMENT CHART

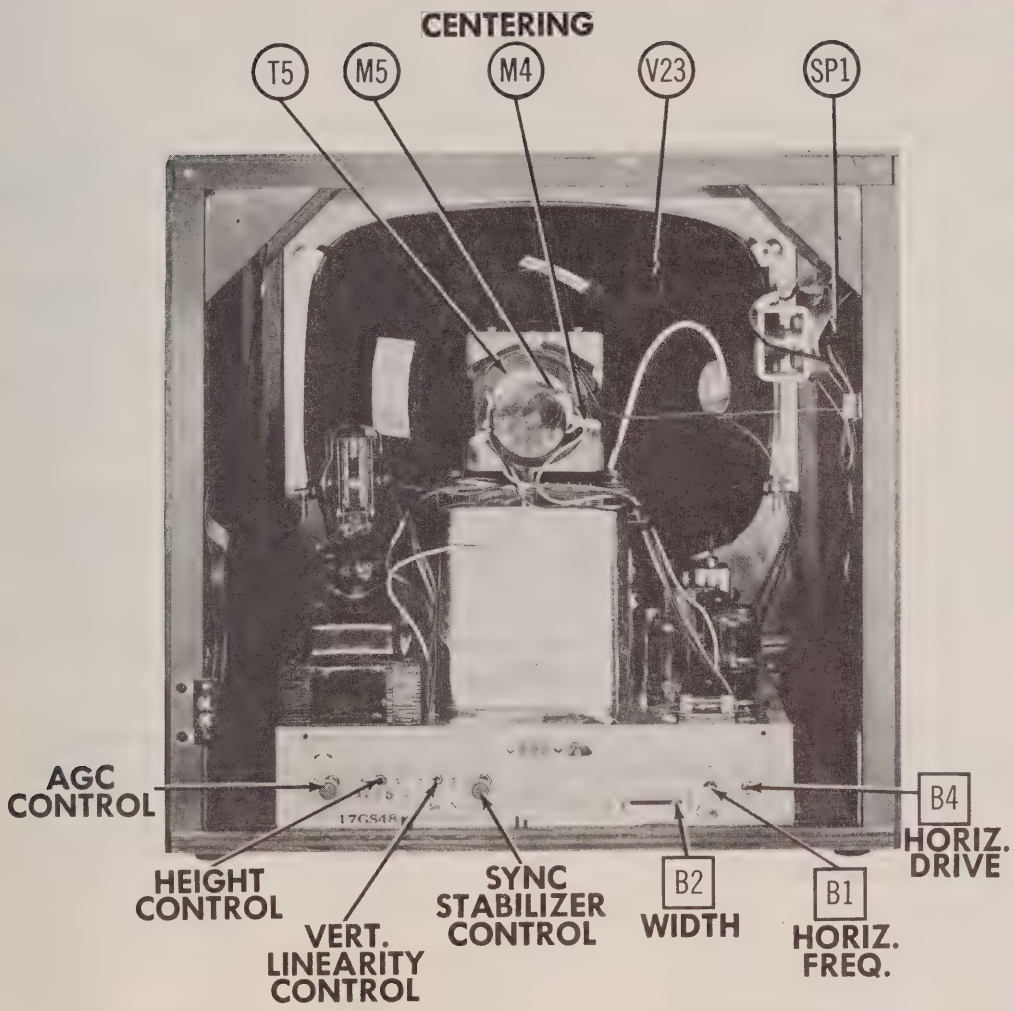


RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

DENVER, COLORADO



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Set the horizontal hold control at the center of its range and adjust the horizontal frequency slug (B1) until picture synchronizes horizontally.

Set the contrast control at minimum and advance the brightness control for normal brillance.

Adjust the width slug (B2) for a picture slightly wider than necessary to fill the mask horizontally.

Adjust the horizontal drive trimmer (B4) in a clockwise dirction as far as possible without the presence of vertical white lines near the center of the picture.

Recheck adjustment (B1).

Adjust the horizontal linearity slug (B3) for picture that is symmetrical from left to right.

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL

LOSS OF SWEEP

Follow procedure outlined under "Loss of High Voltage".

INSUFFICIENT SWEEP

Check by substitution V19 and V20. Check adjustments B2, B3 and B4. Check T3, T5A, R101, R100, C76, C6 and other associated components.

DRIVE LINES

Check by substitution V19 and V20. Check adjustments B4 and B3. Check T3, T5A, R101, R97, C73, C6 and other associated components.

COMPRESSED LEFT SIDE

Check by substitution V19 and V20. Check horizontal output and damper stages for component failure or change of value.

FOLDS

Follow procedure outlined under "Drive Lines".

PIE CRUST EFFECT

Check by substitution V18, V19 and V20. Check C71 for open. Check R85, R87, C72, L23 and other associated components.

XMAS TREE EFFECT

Check by substitution V18, V19 and V20. Check T3 and T5A for internal arcing. Check C69, C72, C73, C75, L23, R97, R94 and other associated components.

VERTICAL

LOSS OF SWEEP

Substitute V16. Check waveform W11.

If Satisfactory	If Unsatisfactory
Check T4, T5B, R83, R79, R7, C2B, C5 and other associated components.	Check T2, R77, R8, C66, C63 and other associated components.

INSUFFICIENT SWEEP

Substitute V16. Check height and vertical linearity controls for proper operation. Check T4, T5B, R77 and other associated components.

COMPRESSED AT BOTTOM

Substitute V16. Check C5, C64, C66, R77, R8 and other associated components.

COMPRESSED AT TOP

Substitute V16. Check R79, R7, C2B, T4 and other associated components.

FOLDS

Substitute V16. Check C64, C65, C66, R80, T4, T5B and other associated components.

SYNC

LOSS OF VERTICAL AND HORIZONTAL SYNC

Check by substitution V15 and V7. Check C58, C60, R66, R70, R69, R72, and other associated components.

LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY

Substitute V16. Check vertical integrator network. Check C62, C63, R81, R75, R5, T2 and other associated components.

LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY

Check by substitution V17 and V18. Check horizontal AFC network. Check L23, C72, C73, R93, R2 and other associated components.

HORIZONTAL BENDING

Check by substitution V7, V15, V17 and V18. Check horizontal AFC network.

VIDEO

LOSS OF VIDEO

Check by substitution V7 and V8. Check C39, C40, L19, L18, R36, R37, R31, R32 and other associated components.

SOUND BARS (4.5MC BEAT)

Adjust tuner fine tuning for best sound and picture. Check adjustment A11. Check video IF alignment.

POOR CONTRAST

Check by substitution V7 and V8. Check L13, L17, L18, C39, C40, R35, R31 and R32. Check picture tube.

NEGATIVE PICTURE

Check by substitution V7 and V8. Check picture tube. Check video detector network. Check C39, C40 and other associated components.

SMEAR

Check by substitution V7 and V8. Check L13, L14, L16, L17, L18, C39, C40 and other associated components.

WIDE BLACK BAR ACROSS PICTURE

Check by substitution V1, V3, V4, V5, V6, V7 and V8 for heater to cathode leakage.

AUDIO

WEAK OR NO SOUND

Check by substitution V10, V11, V12, V13 and V14. Check stages V13 and V14 using audio signal generator. Apply audio signal across R1B.

If Satisfactory	If Unsatisfactory
Check ratio detector and audio IF stages for component failure or change of value.	Check C52, C55, C57, C56A, C4B C4A, R64, T8, speaker and other associated components.

BUZZ

Adjust tuner fine tuning for best sound and picture. Check adjustment A10. Check audio IF alignment.

DISTORTED

Follow procedure outlined under "Weak or No Sound".

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly. Check switch on volume control and T1. If filaments light, substitute V22. Check B+ filter and decoupling network. Check M1 fuse.

SMALL AND/OR DIM PICTURE

Substitute V22. Check B+ filter and decoupling network.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	RF Amp.	6BZ7	6BZ7	9AJ	6BQ7 used as an alternate.
V2	Mixer-Osc.	6J6	6J6	7BF	
V3	1st Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Det-DC Restorer	6AL5	6AL5	6BT	
V7	Video Amp. - Sync Phase Inverter	12AT7	12AT7	9A	
V8	Video Output	12BY7	12BY7	9BF	
V9	AGC Keying	6AU6	6AU6	7BK	
V10	1st Sound IF Amp.	6AU6	6AU6	7BK	
V11	2nd Sound IF Amp.	6AU6	6AU6	7BK	
V12	Radio Det	6AL5	6AL5	6BT	
V13	AF Amp-AGC Clamper	6AV6	6AV6	7BT	
V14	Audio Output	6AQ5	6AQ5	7BZ	
V15	Sync Sep.	6CS6	6CS6	7CH	
V16	Vert. Osc. - Vert. Output	6SN7GTA	6SN7GTA	8BD	
V17	Horiz. AFC	6AL5	6AL5	6BT	
V18	Horiz. Mult	6SN7GTA	6SN7GTA	8BD	
V19	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V20	Damper	6AX4GT	6AX4GT	4CG	
V21	HV Rectifier	1B3GT	1B3GT	3C	
V22	LV Rectifier	5U4G	5U4G	5T	

3024 W. 32nd St.
DENVER, COLORADO

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA: TRUETONE PART No.	CBS-HYTRON PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.	RETMA BASE TYPE	NOTES
V23	17HP4	17HP4/17RP4	17HP4/17RP4	17HP4/17RP4	17HP4/17RP4	12L	① Aluminized
		17HP4B ①				12L	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲80	300	45X397	AFH3-46		C037		FP229.4	TVL-3792	
B	▲60	300								
C2A	▲80	300	45X395	AFH3-142		B087		FP229.8	TVL-3764	
B	▲100	50								
C3	5	25	45X378	PRS150/4		BR550		TC30	TVA-1203	
C4A	■10	300	45X410	AFH3-136		C092		FP230.3	TVL-3749	
B	▲40	50								
C5	30	400	45X393	PRS450/30		BR3045		TC77	TVA-1711	
C6	5	25	45X378	PRS150/4		BR550		TC30	TVA-1203	
C7	4	100	45X361	PRS150/4		BR415		TC40	TVA-1402	
C8	3-9		31B-207		829-10					
C9	800		13D-153	EF-001	MFT-1000				503C-D1	
C10	3.6		CD8C3R6C							
C11	800		13D-196	EF-001	MFT-1000				503C-D1	
C12	1000		CD8X102Z	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C13	.5-3		13B-206		829-3		311S-01-0R5	CT565A		
C14	1.5		CD8C1R5M	SI1.5NP0	TCZ-1.5	Z004	NP0A-1R5	ZT-5515	5TCCB-V15	
C15	47		CD8Q470K	BPD-470	D6-470	G033	831-470	UC-5447	5GA-Q47	
C16	800		13D-153	EF-001	MFT-1000				503C-D1	
C17	47		CD8Q470K	BPD-470	D6-470	G033	831-470	UC-5447	5GA-Q47	
C18	.5-3		31B-206		829-3		311S-01-0R5	CT565A		
C19	10		CD10C100K	SI10NP0	TCZ-10	Z018	NP0K-100	ZT-541	5TCC-Q1	
C20	5		CD8U050C							
C21	1000		CD8X102Z	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C22	6.8		CD8C6R8C	SI6.8NP0	TCZ-6.8	Z013	NP0K-6R8	ZT-5568	5TCC-V68	
C23	120		13D-055	BPD-121	D6-121	G044	801-121	UC-5312	5GA-T12	
C24	800		13D-153	EF-001	MFT-1000				503C-D1	
C25	800		13D-153	EF-001	MFT-1000				503C-D1	
C26	.22	200	RCP10M2224M	P288-22		CUB2P22		PT4022	2TM-P22	
C27	1000		80X1	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C28	1000		80X1	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C29	1000		80X1	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C30	.22	200	RCP10M2224M	P288-22		CUB2P22		PT4022	2TM-P22	
C31	1000		80X1	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C32	1000		80X1	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C33	1000		80X1	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C34	1000		80X1	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C35	1000		80X1	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C36	1000		80X1	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C37	5		47X562	SI5NP0	TCZ-5	TZ07	NP0A-050	ZT-555	5TCCB-V47	
C38	360	500	47X568	1469-361		5R5T36				
C39	.047	400	RCP10M4473M	P488-047	DF-503	CUB4S47		PT4147	4TM-S47	
C40	.1	400	RCP10M4104M	P488-1	DF-104	CUB4P1		PT401	4TM-P1	
C41	.1	200	RCP10M2104M	P288-1	DF-104	CUB2P1		PT401	2TM-P1	
C42	.015	600	RCP10M6153M	P688-015		CUB6S15		PT6115	6TM-S15	
C43	.047	600	RCP10M6473M	P688-047	DF-503	CUB6S47		PT6147	6TM-S47	
C44	1000		80X1	BPD-01	DD-102	K069	801-001	DC-521	5HK-D1	
C45	1.5		47X584	SI1.5NP0	TCZ-1.5	TZ04	NP0A-1R5	ZT-5515	5TCCB-V15	
C46A	10000	}	80X6	BPD-2X01	DD3-103	DK082	{ 811-01	DC-511	} 5HK-2S1	
B	10000	}					{ 811-01	DC-511	}	
C47	100		47X604	SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C48	5000		47X507	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C49	5000		47X507	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C50	330	500	47X570	1468-331	D6-331	5W5T33	GP2K-331	UC-5333	5GA-T33	
C51	470	500	47X525	1468-471	D6-471	5W5T47	GP2K-471	MC245		
C52	.047	200	RCP10M2473M	P288-047	DF-503	CUB2S47		PT4147	2TM-S47	
C53	.0047	400	RCP10M4472M	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	
C54	.0047	400	RCP10M4472M	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	
C55	5000		47X507	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP	RATING VOLT	REPLACEMENT DATA TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C56A	10000									
B	250		†76X8	†PA-113-3	†PC-80	†1S7TM1	†1404-01		TT-1	
C										
C57	.0047	600	RCP10M6472M	P688-0047	D6-472	CUB4D47	GP3-233-472	PT6247	47M-D47	
C58	.01	400	RCP10M4103M	P488-01	D6-103	CUB4B1	GP3-233-103	PT4U	47M-S1	
C59	1000		90X1	BPD-001	DD-102	K069	801-001	DC-531	5HK-D1	
C60	.047	400	RCP10M6473M	P488-047	D7-473	CUB4B47		PT4U47	47M-S47	
C61A	2000							PT623		
B	5000		+76X7	+PA-150	+PC-100	+1S7TM1	+1405-01	PT625	+7-1	
C	5000							PT635		
C62	4700	500	47X543	1484-473		1R5D47		MCB465	MS-25	
C63	.022	300	RCP10M2223M	P488-022	D7-303	CUB4S3	S1T-03	PT4U33	47M-S33	
C64	.047	600	RCP10M6473M	P688-047	D7-503	CUB4B47		PT6147	47M-647	
C65	.023	300	RCP10M2323M	P488-023	D7-303	CUB4S3	S1T-03	PT4U3	47M-S33	
C66	.1	600	RCP10M6104M	P688-1	D7-104	CUB4P1		PT601	47M-P1	
C67	1000		90X1	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C68	1000		90X1	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C69	.01	400	RCP10M4103M	P488-01	D6-103	CUB4S1	GP3-233-103	PT4U	47M-S1	
C70	.0047	400	RCP10M4473M	P488-0047	D6-472	CUB4D47	GP3-233-472	PT6247	47M-D47	
C71	.047	500	RCP10M6473M	P288-047	D7-503	CUB4B47		PT4U47	47M-S47	
C72	4700	500	47X543	1484-473		1R5D47		MCB465	MS-25	
C73	470	500	RCM20B471J	1469-471		SR5T47		MC5S45	MS-35	
C74	.1	600	RCP10M6104M	P488-1	D7-104	CUB4P1		PT601	47M-P1	
C75	330	500	47X570	1469-331		SR5T33				
C76	.047	400	RCP10M6473M	P488-047	D7-503	CUB4S47		PT4U47	47M-S47	
C77	.1	600	RCP10M6104M	P488-1	D7-104	CUB4P1		PT601	47M-P1	
C78	.047	600	RCP10M6473M	P488-047	D7-503	CUB4S47		PT6147	47M-647	
C79	.15	600	RCP10M6154M	P488-15		CUB4P15		PT6015	47M-P15	
C80	500	30000	47X560	HV30C	TV3-502	MMU2G5T5	413	HV30035A	30DK-T5	
C81	10000		47X618	BPD-01	DD-103	K092	811-01	DC-511	5HK-81	
C82	10000		47X615	BPD-01	DD-103	K092	811-01	DC-511	5HK-81	

† Items C58A, C58B, C59C, R62A, R62B are combined in one unit.
When replacing items separately, C58B and C59C should total 250MMF.
• Items C61A, C61B, C61C, R73A, R73B, R73C are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω	½	*QJ-E19	RTV-499	F1-4	U71S1		Contrast - Panel
B	1Meg	½			R3-37	UR1E-733		Volume Tapped at 300KΩ-Rear
C	Switch				KB-2	U8-37		Attach to R1B
R2A	50KΩ	½	40X392BA	QU-123	A47-50K-S	AB-31	U-35	Horiz. Hold
B	Shaft		Not Req.	Not Req.	KS8-1	AK-4	Not Req.	Attach to R2A
R3A	1Meg	½	40X394F	QU-137	A47-1Meg-S	AB-59	U-54	Tone - Note 1
B	Shaft		Not Req.	NQ	R3-3/8	AK-8	DS-37	Attach to R3A
R4A	500KΩ	½	40X390D	QU-133	A47-500K-S	AB-59	U-50	Brightness
B	Shaft		Not Req.	NQ	R3-3/8	AK-4	Not Req.	Attach to R4A
R5A	1Meg	½	40X394F	QU-137	A47-1Meg-S	AB-59	U-54	Vert. Hold - Note 1
B	Shaft		Not Req.	Not Req.	R3-3/8	AK-8	DS-37	Attach to R5A
R6A	7.5Meg	½	B40X370A	QU-143	A47-7.5Meg-S			Sync Stability
B	Shaft		Not Req.	Not Req.	FK8-1/4			Attach to R6A
R7A	8000Ω	½	B40X375	QU-116	A47-10K-S	AB-14	SU-30	Vert. Linearity
B	Shaft		Not Req.	NQ	FK8-1/4	AK-1	Not Req.	Attach to R7A
R8A	2.5Meg	½	B40X369A	QU-139	A47-2.5Meg-S	BX-83	SU-585	Height
B	Shaft		Not Req.	NQ	FK8-1/4	Not Req.	Not Req.	Attach to R8A
R9A	2.5Meg	½	B40X369A	QU-139	A47-2.5Meg-S	BX-83	SU-585	AGC
B	Shaft		Not Req.	NQ	FK8-1/4	Not Req.	Not Req.	Attach to R9A

Note 1: Some versions may use an alternate control part no. 40X391.
* CONCENTRIKIT EQUIVALENT: KIT K-3, BASE ELEMENTS & SHAFTS: B1J-108 & P6-1J2 (PANEL)
B1J-137X & R1E-205 (REAR)
76-2 SWITCH

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA TRUETONE PART No.	IRC PART No.	NOTES
R10	15KΩ	½	12A-004	BTS-15K	
R11	47KΩ	½	12A-039	BTS-47K	
R12	100KΩ	½	12A-094	BTS-100K	
R13	150KΩ	½	12A-153	BTS-150K	
R14	100KΩ 5%	½	12A-186	BTS-100K 5%	
R15	160KΩ 5%	½	12A-187	BTS-160K 5%	
R16	10KΩ	½	12A-040	BTS-10K	
R17	220KΩ	½	12A-041	BTS-220K	
R18	10KΩ	½	12A-040	BTS-10K	
R19	15KΩ	½		BTS-15K	Note 1
R20	8200Ω 5%	½	B53822	BTS-8200 5%	
R21	470 5%	½	B53470	BTS-47 5%	
R22	1000Ω	½	B65102	BTS-1000	
R23	1000Ω	½	B65102	BTS-1000	
R24	22KΩ 5%	½	B53223	BTS-22K 5%	
R25	470 5%	½	B53470	BTS-47 5%	
R26	1000Ω	½	B65102	BTS-1000	
R27	22KΩ 5%	½	B53223	BTS-22K 5%	
R28	180Ω	½	B54181	BTS-180	
R29	150Ω	½	B54152	BTS-150	
R30	4700Ω 5%	½	B53472	BTS-4700 5%	
R31	5600Ω	½	C54562	BTA-5600	
R32	1500Ω	½	B54152	BTS-1500	
R33	33KΩ	½	B54333	BTS-33K	
R34	1Meg	½	B54105	BTS-1Meg	
R35	68Ω	½	B54680	BTS-68	
R36	2000Ω	2	D53202	BTB-2000	
R37	2000Ω	2	D53202	BTB-2000	
R38	1Meg	½	B54105	BTS-1Meg	
R39	100KΩ	½	B54104	BTS-100K	
R40	22000Ω 5%	½	B54222	BTS-2200 5%	
R41	22KΩ 5%	½		BTA-22K 5%	
R42	100KΩ	½	B55104	BTS-100K	
R43	100KΩ	½	B55104	BTS-100K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA TRUETONE PART No.	IRC PART No.	NOTES
R44	47KΩ	½	B55473	BTS-47K	
R45	47KΩ	½	B54473	BTS-47K	
R46	470KΩ	½	B54474	BTS-470K	
R47	2.7Meg	½	B54275	BTS-2.7Meg	
	330KΩ	½	B53334	BTS-330K	
	100KΩ	½	B54104	BTS-100K	
R50	100Ω	½	B54101	BTS-100	
R51	1000Ω	½	B55102	BTS-1000	
R52	56KΩ	½	B54563	BTS-56K	
R53	33KΩ	½	B54333	BTS-33K	
R54	1000Ω	½	B65102	BTS-1000	
R55	33KΩ	½	B54333	BTS-33K	
R56	270Ω	½	B54271	BTS-270	
R57	68KΩ	½	B54683	BTS-68K	
R58	10KΩ 5%	½	B53103	BTS-10K 5%	
R59	100KΩ 5%	½	B53104	BTS-100K 5%	
R60	68KΩ	½	B54683	BTS-68K	
R61	10Meg	½	B65106	BTS-10Meg	
R62A	500KΩ	½		BTS-500K	
B	500KΩ	½		BTS-500K	
R63	330Ω	½	C54331	BTA-330	
R64	1000Ω	½	D54102	BTS-1000	
R65	47KΩ	½	B54473	BTS-47K	
R66	10KΩ	½	B54103	BTS-10K	
R67	270KΩ	½	B54274	BTS-270K	
R68	1.5Meg	½	B54155	BTS-1.5Meg	
R69	68KΩ	½	B54683	BTS-68K	
R70	820KΩ	½	B54824	BTS-820K	
R71	22000Ω 5%	½	B53322	BTS-2200 5%	
R72	22000Ω 5%	½	B53222	BTS-2200 5%	
R73A	22KΩ	½		BTS-22K	
B	8200Ω	½		•76X7	BTS-8200
C	8200Ω	½			BTS-8200
R74	22KΩ 5%	1			BTA-22K 5%

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA TRUETONE PART No.	IRC PART No.	NOTES
R75	3.3Meg 5%	½	B53355	BTS-3.3Meg 5%	
R76	22KΩ 5%	½		BTA-22K 5%	
R77	1.8Meg	½	B54185	BTS-1.8Meg	
R78	2.2Meg	½	B54225	BTS-2.2Meg	
R79	820Ω	½	B54821	BTS-820	
R80	8200Ω	½	B54822	BTS-8200	
R81	2.2Meg	½	B54225	BTS-2.2Meg	
R82	150KΩ	½	B54154	BTS-150K	
R83	3300Ω	1	C54332	BTA-3300	
R84	560Ω	½		BTS-560	
R85	100KΩ	½	B54104	BTS-100K	
R86	4.7Meg	½	B55475	BTS-4.7Meg	
R87	100KΩ	½	B54104	BTS-100K	
R88	470KΩ	½	B55474	BTS-470K	
R89	27KΩ	½	B54273	BTS-27K	
R90	15KΩ	1	C54153	BTA-15K	

Note 1: Some versions may use a 10KΩ resistor in this application.
Note 2: Not used in some versions.
Note 3: Some versions may use a 47KΩ ½ watt resistor in this application.
† Items R62A, R62B, C58A, C58B and C58C are combined in one unit.
• Items R73A, R73B, R73C, C61A, C61B and C61C are combined in one unit.

ITEM No.	RESISTORS OHMS	RESISTORS WATT	REPLACEMENT DATA TRUETONE PART No.	IRC PART No.	NOTES
R91	150Ω 5%	½	B53152	BTS-1500 5%	
R92	4300Ω 5%	1	C53432	BTA-4300 5%	
R93	150KΩ 5%	½	B53154	BTS-150K 5%	
R94	220KΩ 5%	½	B53334	BTS-220K 5%	
R95	47KΩ	1		BTA-47K	Note 2
R96	47KΩ	1	C54473	BTA-47K	Note 3
R97	8200Ω	½	B54822	BTS 8200	
R98	68Ω	½	B55690	BTS-68	
R99	470KΩ	½	B54474	BTS-470K	
R100	100Ω	2	D54101	BTB-100	•
R101	75000 5%	½	D54752	BTB-7500 5%	
R103	5600Ω	½	B54562	BTS 5600	
R103	3.3Ω	1			
R104	1Meg	1	C55105	BTA-1Meg	
R105	1700Ω	10	43X386		
R106	100KΩ	2	D55104	BTB-100K	
R107	270KΩ	½	B55274	BTS-270K	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA TRUETONE PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC ⑧ 1.52A	5I6VCT ⑧ .230ADC	5VAC ⑧ 3A	53X340A						
	SEC. 3	SEC. 4	SEC 5							
	6.3VAC ⑨ 3.3A									

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA TRUETONE PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Osc. Trans.	54X20	B6702	A-3003	209T1 ①	V405	A-8125	24A87 ①	A-97X
T3	Horiz. Output Trans.	53X329			2327I ④	X110 •			D-35 ④
					2123I * ①				WC-12T ①
T4	Vert. Output Trans.	51X166	21806 ①	A-3030 ①	2267I ①	V312 ①	A-8141 ①	26854 ①	A-104X ①
T5A	Yoke-Horiz. (53.5MH)	9A2234-2 ④	DP903 ④	MDP-72	2ILD3 ④ ⑤	Y70F14 ④	DY-9A ④	Y-4 ④ ⑤	Y-17 ④ ⑤
B	Vert. (47MH)	2A459 ⑤		3D1P ⑤			⑤		
T6	Horiz. Lin. Coil (1.3-6.5MH)	9A2262	RF800 ④	MWC-6 ④	215RI ④	20IRI5 ④	WC-8 ④	WC-16 ④	WC-42 ④
T7	Width Coil (1-.6MH)	9A2183			20IR4 ④	20IR4 ④	WC-4 ④	WC-15 ④	

① Drill new mounting hole(s).
② Includes resistor R84.
③ Yoke cover and positioning device.
④ Use original yoke damping network and leads. Connect as in original circuit.
⑤ Use original yoke cover and positioning device.
⑥ Enlarge mounting hole.
⑦ Connect to terms #3 and #4.
⑧ Connect to coded blue and green terms.
⑨ Drill new mounting hole or use original slider and core.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
6			10	13			10
				Jumper			
5			8	10 & 11			8
4			8	6			6
3			Note ⑩	4			Note ⑩
2			N. C.	2			N. C.
1			3	1			
A			2	9			2
G			1	8			1
Connect Width Coil Across	2 & 1		2I2RI across 2 & 1	2 & 1			WC-12 Blue & Red Terms Across 2 & 1
Special Notes			⑩				⑨ ⑪

⑩ Connect a 47MMF or 56MMF capacitor from term #6 to open end of R103. (Orig. term #3 lead.)
⑪ Jumper terms #9 and "T".

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA TRUETONE PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T8	5.1KΩ	3, 6Ω	51X166	A-3877	A-2930	S-3X	Z1107	24851	

SPEAKER

ITEM No	RATINGS SIZE	RATINGS FIELD	RATINGS V C IMP	REPLACEMENT DATA TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3 6Ω	12A516	ST-106 Mod. P6-X	6A21	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI	DC RES. SEC	REPLACEMENT DATA TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1A	Ant. Coil	0QCT	0Ω	9A2278-1				Channel 2
B	Ant. Coil	0QCT	0Ω	9A2278-2				Channel 3
C	Ant. Coil	0QCT	0Ω	9A2278-3				Channel 4
D	Ant. Coil	0QCT	0Ω	9A2278-4				Channel 5
E	Ant. Coil	0QCT	0Ω	9A2278-5				Channel 6
F	Ant. Coil	0QCT	0Ω	9A2278-6				Channel 7
G	Ant. Coil	0QCT	0Ω	9A2278-7				Channel 8
H	Ant. Coil	0QCT	0Ω	9A2278-8				Channel 9
I	Ant. Coil	0QCT	0Ω	9A2278-9				Channel 10
J	Ant. Coil	0QCT	0Ω	9A2278-10				Channel 11
K	Ant. Coil	0QCT	0Ω	9A2278-11				Channel 12
L	Ant. Coil	0QCT	0Ω	9A2278-12				Channel 13
L2	Fil. Choke	0Ω		54A-546				
L3	Neut. Coil	0Ω		31B-266				
L4A	RF, Mixer Grid, & Osc. Coils	0Ω	0Ω	9A2279-1				Channel 3
B	RF, Mixer Grid, & Osc. Coils	0Ω	0Ω	9A2279-2				Channel 3
C	RF, Mixer Grid, & Osc. Coils	0Ω	0Ω	9A2279-3				Channel 4
D	RF, Mixer Grid, & Osc. Coils	0Ω	0Ω	9A2279-4				Channel 5
E	RF, Mixer Grid, & Osc. Coils	0Ω	0Ω	9A2279-5				Channel 6
F	RF, Mixer Grid, & Osc. Coils	0Ω	0Ω	9A2279-6				Channel 7
G	RF, Mixer Grid, & Osc. Coils	0Ω	0Ω	9A2279-7				Channel 8
H	RF, Mixer Grid, & Osc. Coils	0Ω	0Ω	9A2279-8				Channel 9
I	RF, Mixer Grid, & Osc. Coils	0Ω	0Ω	9A2279-9				Channel 10
J	RF, Mixer Grid, & Osc. Coils	0Ω	0Ω	9A2279-10				Channel 11
K	RF, Mixer Grid, & Osc. Coils	0Ω	0Ω	9A2279-11				Channel 13
L	RF, Mixer Grid, & Osc. Coils	0Ω	0Ω	9A2279-12				Channel 13
L5	Fil. Choke	0Ω		54A-575				
L6	RF Choke	0Ω		31B-295				
L7	RF Coil	1.3Ω		31B-230				
L8	1st Video IF	1Ω		31A-078				
L9	2nd Video IF	.3Ω	.2Ω	9A2330	1T-1063	TV-116	6349	
L10	3rd Video IF	.3Ω	.3Ω	9A2230	1T-1064	TV-116	6350	
L11	4th Video IF	.3Ω	.2Ω	9A2333				Includes 3LTMC Trap
L12	Fil. Choke	.3Ω		9A2023	19-3001	TV-180	4602	
L13	Series Peaking Coil	10Ω		36A35	19-7300*	TV-181*	4632*	100 Microhenries; Wound on 10KΩ resistor
L14	Shunt Peaking Coil	10Ω		36A37	19-2300	TV-181	6155	225 Microhenries
L15	4.5MC trap	.3Ω		9A2076	20-1004	TV-181	1469	
L16	Shunt Peaking Coil	10Ω		36A1	19-7100	TV-181	4632	100 Microhenries
L17	Shunt Peaking Coil	8.5Ω		36A33	19-7100a	TV-181a	4632a	100 Microhenries; Wound on 470Ω resistor
L18	Series Peaking Coil	13Ω		36A13	19-4300	TV-184a	4644a	160 Microhenries; Wound on 22KΩ resistor
L19	Shunt Peaking Coil	14Ω		36A3	19-3100	TV-184	6180	190 Microhenries
L20	1st Sound IF	2.2Ω		9A2301	19-3445a	TV-113a	1470A+	
L21	2nd Sound IF	2.7Ω	2.1Ω	9A2323	19-3445†	TV-113	6303	Tertiary winding = .4Ω
L22	Ratio Det.	3.7Ω	.60CT	9A2295	1T-1023	TV-110	1468	
L23	Horiz. Osc.	53Ω		9A2096	19-1576	TV-183	6310	

* Parallel with 10KΩ resistor.
• Parallel with 470Ω resistor.
+ Parallel with 22KΩ resistor.
a Use one winding only and drill mounting holes.
+ Use one winding only.
† Drill new mounting holes.

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	TRUETONE PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L24	.230ADC	40.6Ω	.83HY	52X95	C-2326 ①	C-2996 ①	C-23X ①	C5037 ①	26C44

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			TRUETONE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG S/B	4/10A-125V	16X147-3	16X146	313.400 (3AG S/B 4/10A)	357001	MDL 4/10	4405

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M2	Dial Light	7A32	#51, Bayonet
M3	Tuner	25A1094	VHF
M4	Centering Magnet	2A435	Includes yoke cover
M5	Ion trap	2A421	
B4	Trimmer cap.	17A269	Horiz. Drive (120-400MMF)
	Knob	10A820-1	Fine Tuning
	Knob	10A840-1	Contrast
	Knob	10A812-1	Channel selector
	Knob	10A841-1	On-Off-Volume
	Knob	10A826	Red-Secondary Controls
	Safety Glass	17X184	
	Mask	4X1232-1	

TROUBLE SHOOTING AIDS (cont)

DENVER, COLORADO

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V18, V19, V20 and V21. Check waveform W18.

If Satisfactory	If Unsatisfactory
Check T3, T5A, T6, T7, R101, R100, C77, C78, C76 and other associated components.	Check C72, C73, C75, L23, R92, R94, R91 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V19, V20 and V22. Check R101, R97, C75, C6, T3, T5A and other associated components.

BLOOMING

Check by substitution V19, V20, V21 and V22. Check R104, R101, C79, C75 and other associated components.

GENERAL

RASTER, SOUND, NO PICTURE

Follow procedure outlined under "Loss of Video".

RASTER, PICTURE, NO SOUND

Follow procedure outlined under "Weak or No Sound".

RASTER, NO SOUND, NO PICTURE

Check by substitution V1, V2, V3, V4, V5, V6, V7 and V8. Check video IF components for failure or change of value.

NO RASTER, NO SOUND

Follow procedure outlined under "Dead Set".

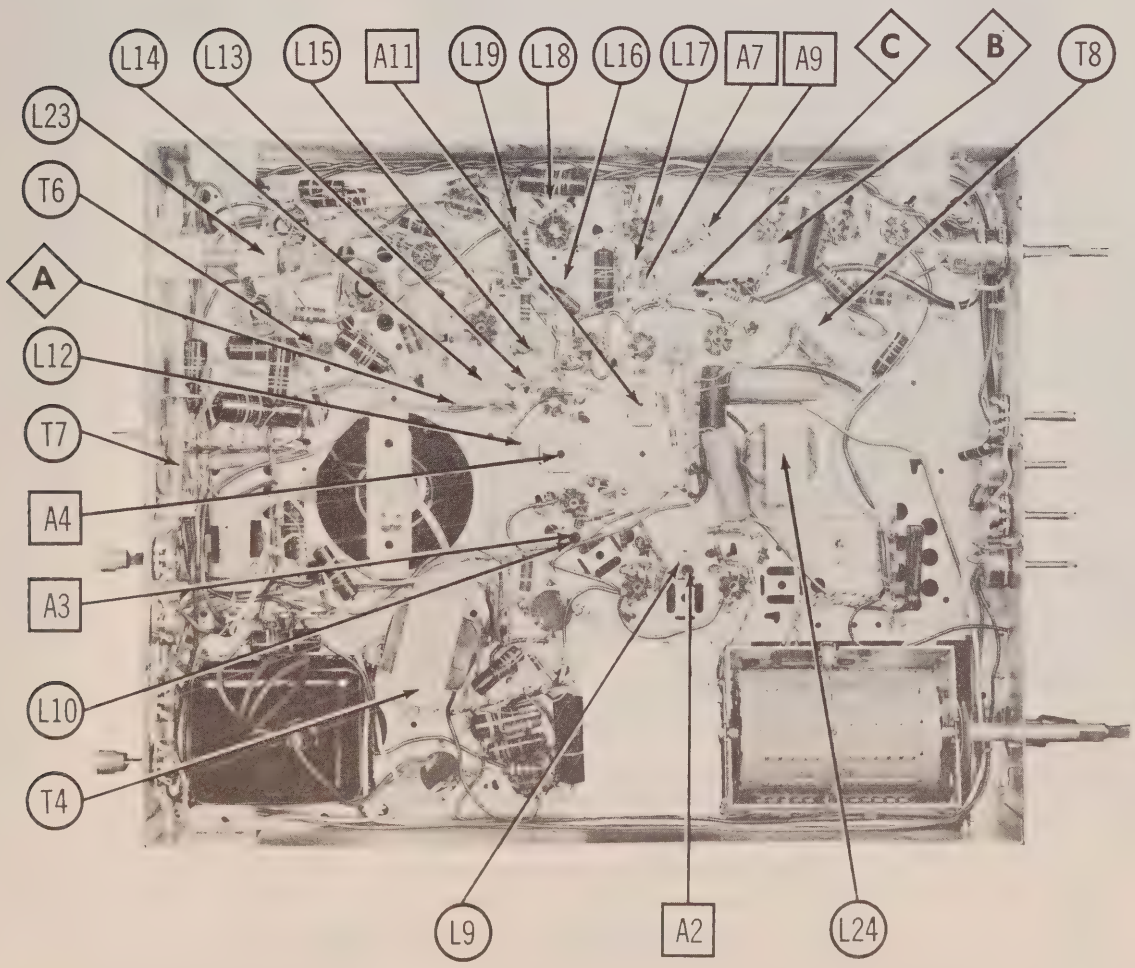
KEYSTONE EFFECT

Check T5 and its associated components.

INTERMITTENT STREAKS

Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, thru the small hole in the cabinet to the right of the channel selector shaft.

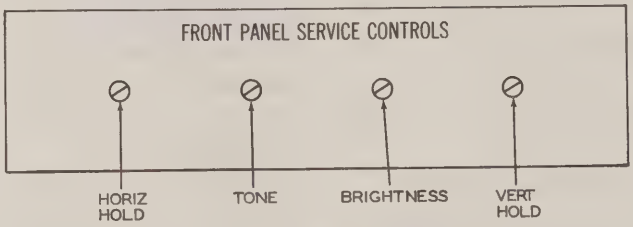
PICTURE TUBE SAFETY GLASS CLEANING

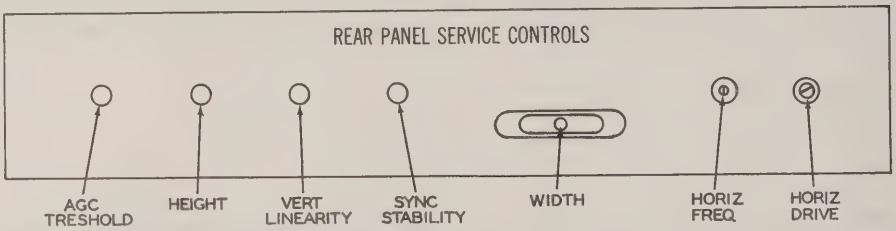
To clean safety glass, remove 4 wood screws holding metal strip at the top front of the cabinet. Remove metal strip and safety glass. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION





SPECIAL ADJUSTMENTS - AGC THRESHOLD CONTROL

Tune in the strongest TV station available.

Turn the AGC threshold control clockwise until a buzz in the sound and a washed-out picture appears, then turn the control slightly counter clockwise for clearest picture and best sound.

SYNC STABILITY CONTROL

With the picture locked in slowly turn the sync stability control clockwise until bending occurs at top of picture. Turn control SLIGHTLY counter clockwise until bending disappears. In general, the weaker the signal area the more clockwise the control should be turned.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal oscillator circuit can be made from the rear panel of the chassis. Set the horizontal hold control at the mid-position of its range and adjust the horizontal frequency slug (L23) until the picture synchronizes horizontally.

SOUND DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L22) located on top of chassis. (See tube placement chart).

FUSES

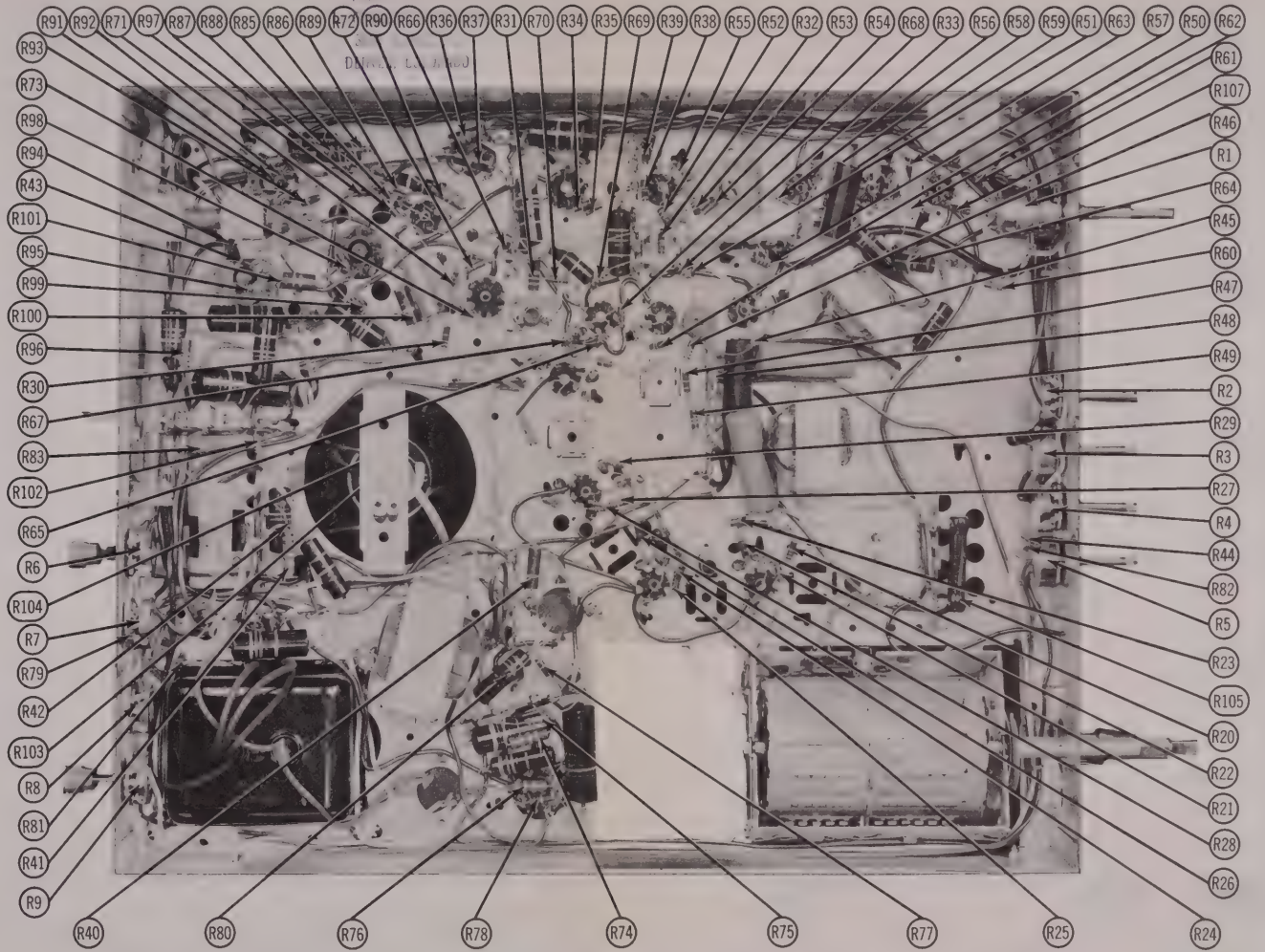
One fuse is used for LV power supply protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube, located flush against the deflection yoke. Rotate the two rings around the neck of the tube until the picture is properly centered.

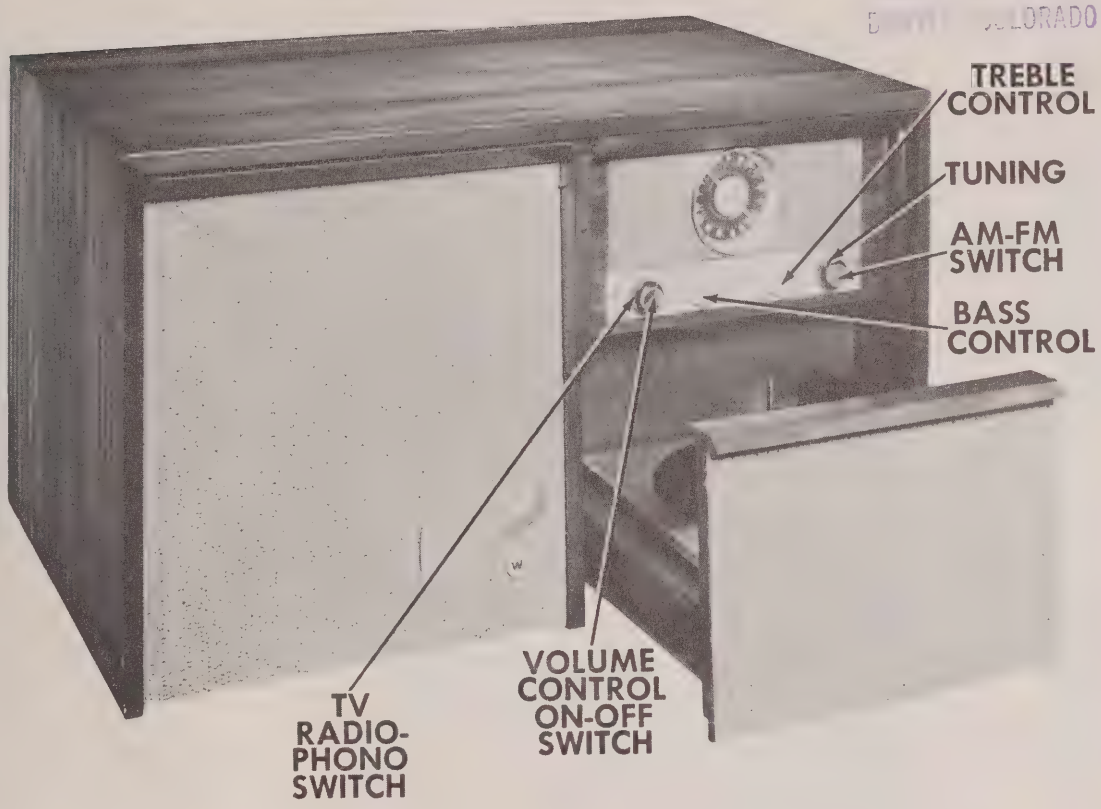
DISASSEMBLY INSTRUCTIONS

1. Remove 4 push-on type control knobs from front panel.
2. Remove 4 screws from rear cover. Remove rear cover.
3. Loosen 2 screws holding antenna bracket. Remove bracket.
4. Disconnect 2 speaker leads. Remove 4 speaker nuts. Remove speaker.
5. Remove 4 chassis bolts. Remove chassis.



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

WESTINGHOUSE MODELS H-469R12, H-470R12, H-480C12 (Ch. V-2180-13 & V-2235-1)



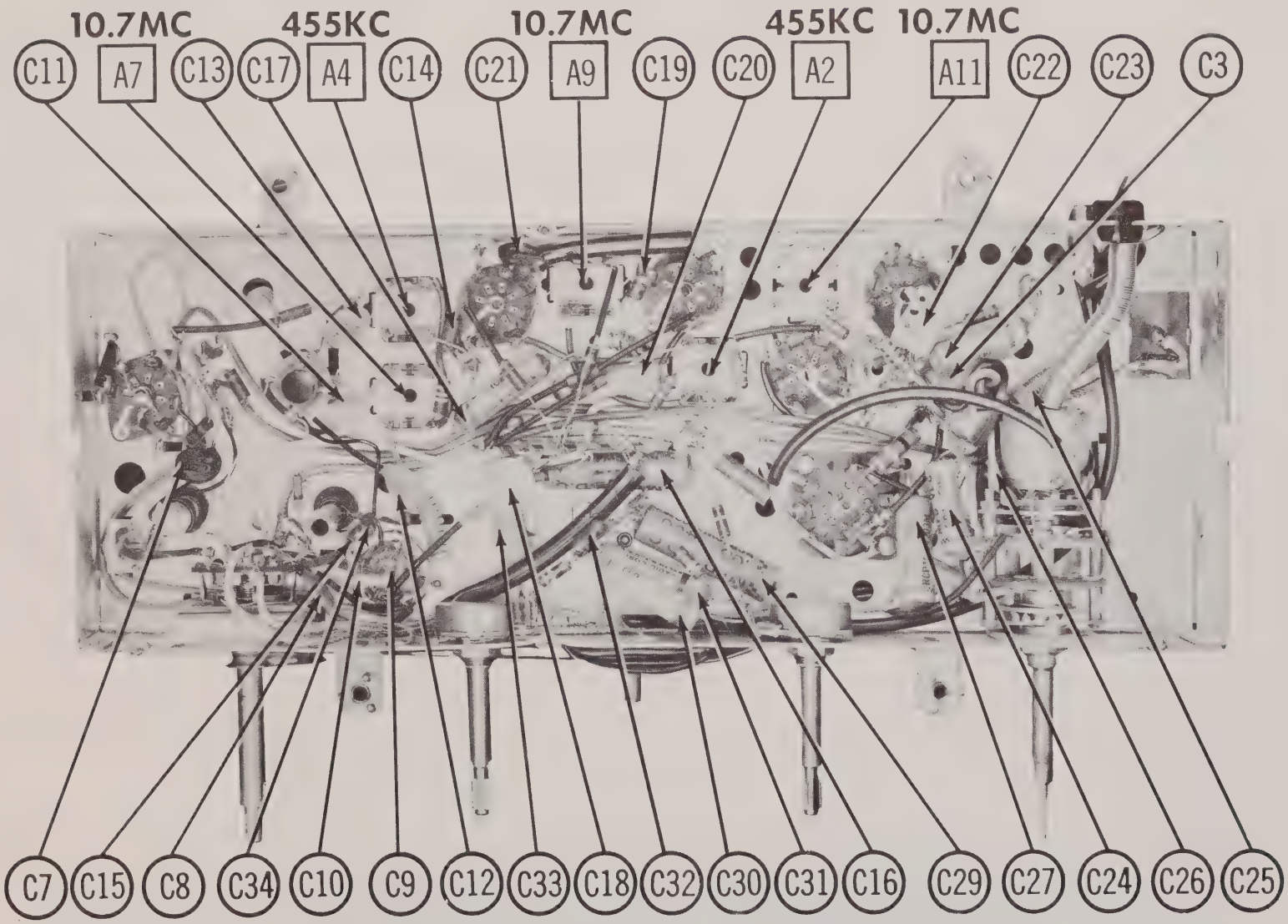
WESTINGHOUSE MODELS H-469R12, H-470R12, H-480C12 (Ch. V-2180-13 & V-2235-1)

TRADE NAME	Westinghouse Models H-469R12, H-470R12, H-480C12 (Ch. V-2180-13 & Pwr. Ch. V-2235-1)	
MANUFACTURER	Westinghouse Electric Corp., TV-Radio Div., Metuchen, N. J.	
TYPE SET	AC Operated AM-FM-Phono Combination Superheterodyne Receiver With 3 Speed Automatic Record Changer	
TUBES	Twelve	
POWER SUPPLY	105-120 Volts AC-60 Cycles	RATING .83 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540KC-1600KC	FREQ. MOD. 88MC-108MC

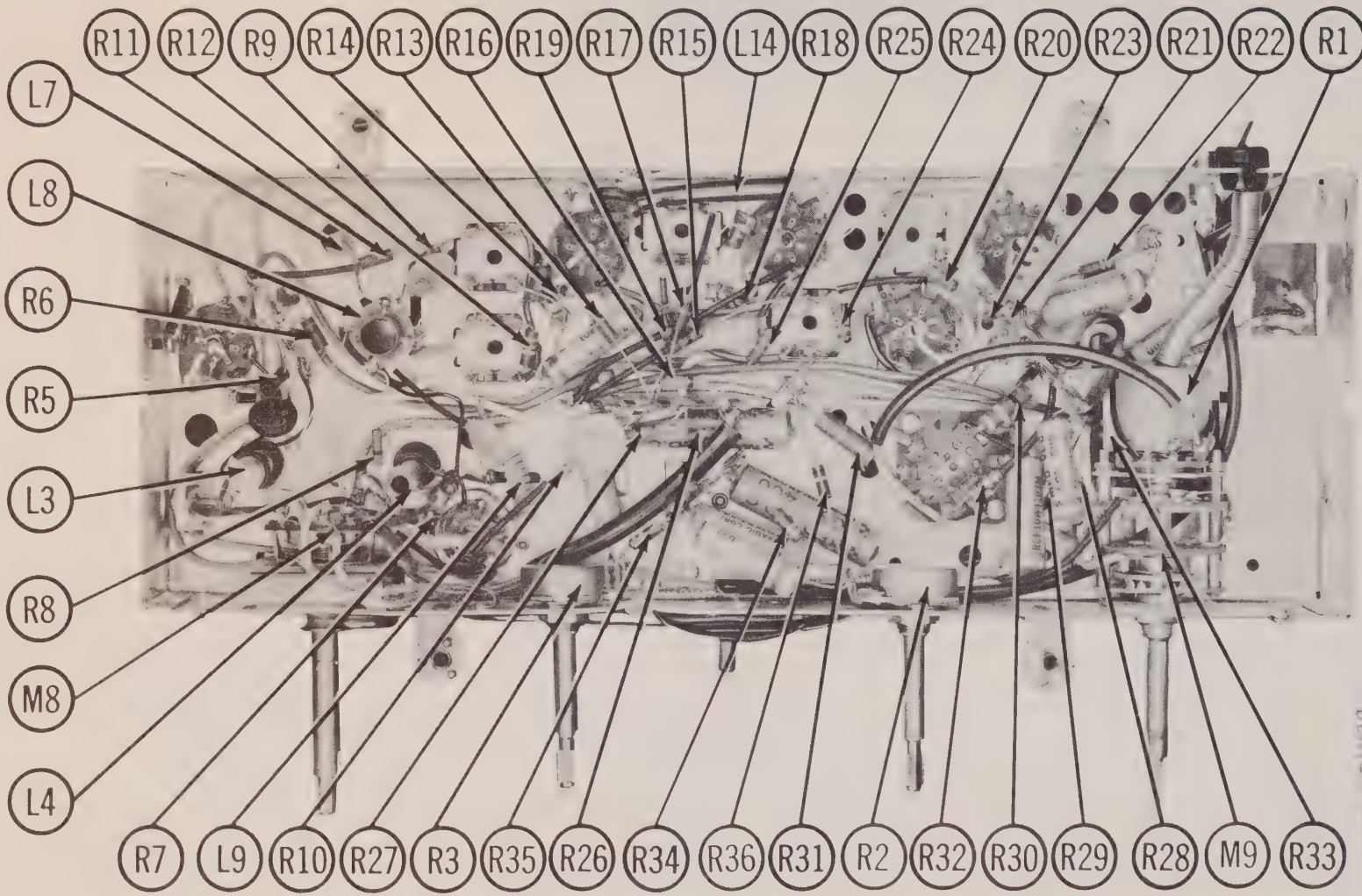
FOR SERVICE INFORMATION ON RECORD CHANGER UNIT V-14732-1 - SEE SIMILAR V-M MODEL 935 PHOTOFACT SET #252-FOLDER 13.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1955 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

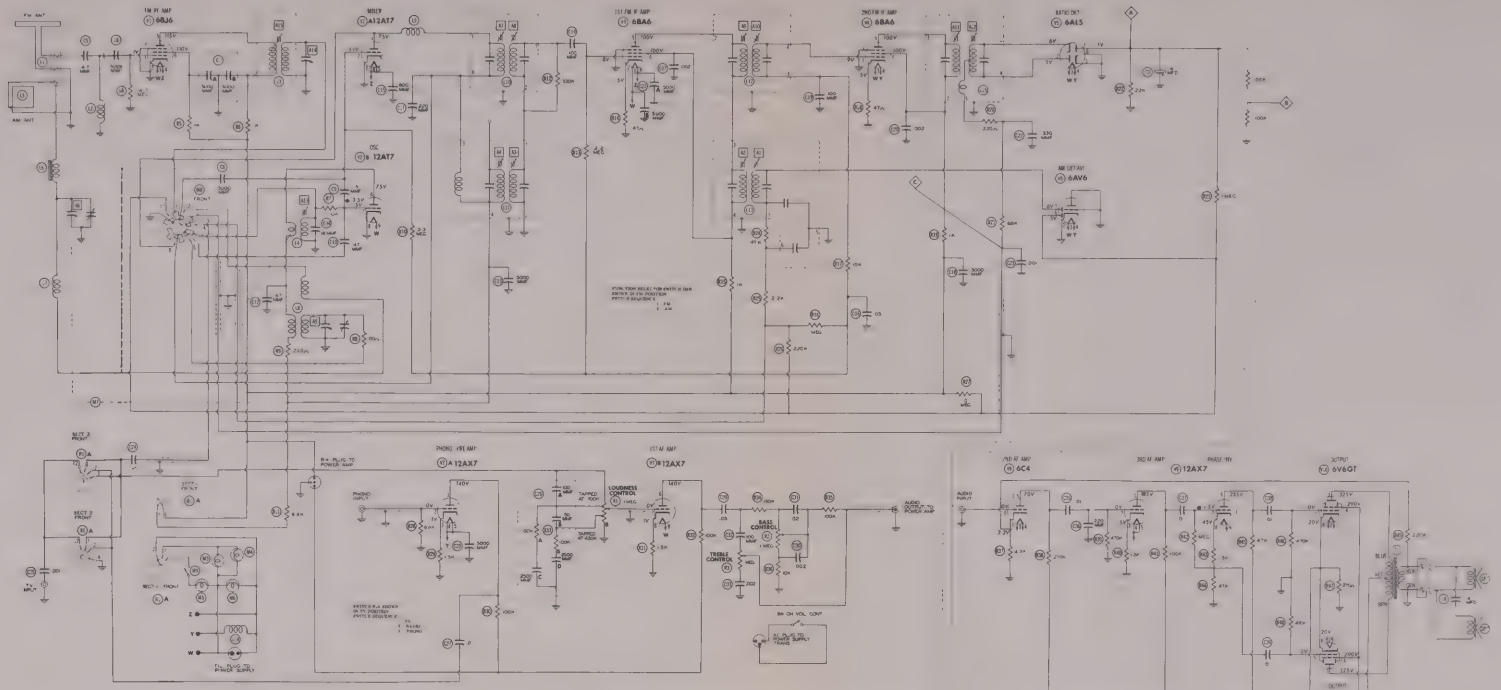


CHASSIS BOTTOM VIEW -CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

WESTINGHOUSE
MODEL H-469R12



AM IF=455KC
FM IF=10.7MC

THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BJ6	4.7Meg	0Ω	0Ω	.1Ω	†6KΩ	†6KΩ	0Ω		
V 2	12AT7	†1L.8KΩ	2.8Meg	0Ω	.1Ω	.1Ω	1L.8KΩ	▪10KΩ INF	0Ω	0Ω
V 3	6BA6	2.2Meg	0Ω	.1Ω	0Ω	†6KΩ	†6KΩ	47Ω		
V 4	6BA6	1.6Meg	0Ω	.1Ω	0Ω	†8KΩ	†6KΩ	47Ω		
V 5	6AL5	INF	INF	.1Ω	0Ω	0Ω	0Ω	22KΩ		
V 6	6AV6	0Ω	0Ω	0Ω	.1Ω	10Meg	10Meg	0Ω		
V 7	12AX7	†150KΩ	6.8KΩ	1.5KΩ	.1Ω	1Ω	†150KΩ	500KΩ	1.5KΩ	0Ω
V 8	6C4	†270KΩ	INF	.1Ω	0Ω	†270KΩ	INF	4.7KΩ		
V 9	12AX7	†100KΩ	470KΩ	1.5KΩ	.1Ω	0Ω	†50KΩ	1Meg	49KΩ	1Ω
V 10	6V6GT	INF	0Ω	†220Ω	†820Ω	470KΩ	INF	.1Ω	270Ω	
V 11	6V6GT	INF	0Ω	†220Ω	†820Ω	470KΩ	1.27KΩ	.1Ω	270Ω	
V 12	5Y3GT	INF	90KΩ	INF	650Ω	INF	650Ω	INF	90KΩ	

† MEASURED FROM PIN 3 OF V12
ALL READINGS TAKEN IN "FM" POSITION UNLESS OTHERWISE NOTED
▪ MEASURED IN "AM" POSITION
■ MEASURED FROM PIN 8 OF V9

A PHOTOFACT STANDARD NOTATION SCHEMATIC
© Howard W. Sams & Co., Inc. 1955

271-17

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to stator lug (ant.) on rear section of tuning gang. Low side to chassis.	455KC (400% Mod)	AM	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	Direct	Loop	1625KC	"	"	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	"	1400KC	"	Tune to 1400KC signal	"	A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from point A to B-. The junction of these two resistors is alignment point B as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.1MFD	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (Unmod)	FM	Tuning gang fully open	DC probe to point (A). Common to chassis.	A7, A8, A9, A10, A11	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point (B). Common to point C.	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.1MFD	High side to pin 2 (grid) of 12AT7 (V2). Low side to chassis.	10.7MC (450KC Swp)	FM	Tuning gang fully open	Vert. Amp. to point (A). Low side to chassis.	A7, A8, A9, A10, A11	Disconnect stabilizer capacitor (C3). Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A12	Reconnect stabilizer capacitor (C3). Adjust so that 10.7MC occurs at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A-11 for maximum straightness and amplitude of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	300Ω Carbon Resistor	High side thru 300Ω to antenna terminal. Low side to chassis.	98MC	FM	98MC	DC probe to point (A). Common to chassis.	A13, A14	Adjust in order given for maximum deflection.
7.	"	"	105MC	"	Tune to 105MC signal	"	A15	Adjust for maximum deflection.
8.	"	"	90MC	"	Tune to 90MC signal	"	A14	Adjust for maximum deflection. while rocking tuning gang. Repeat step 7 & 8 for optimum tracking.

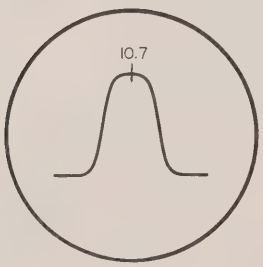


FIG. 1

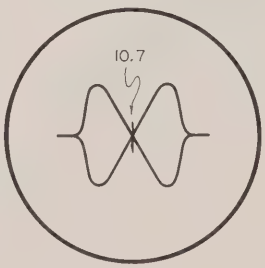
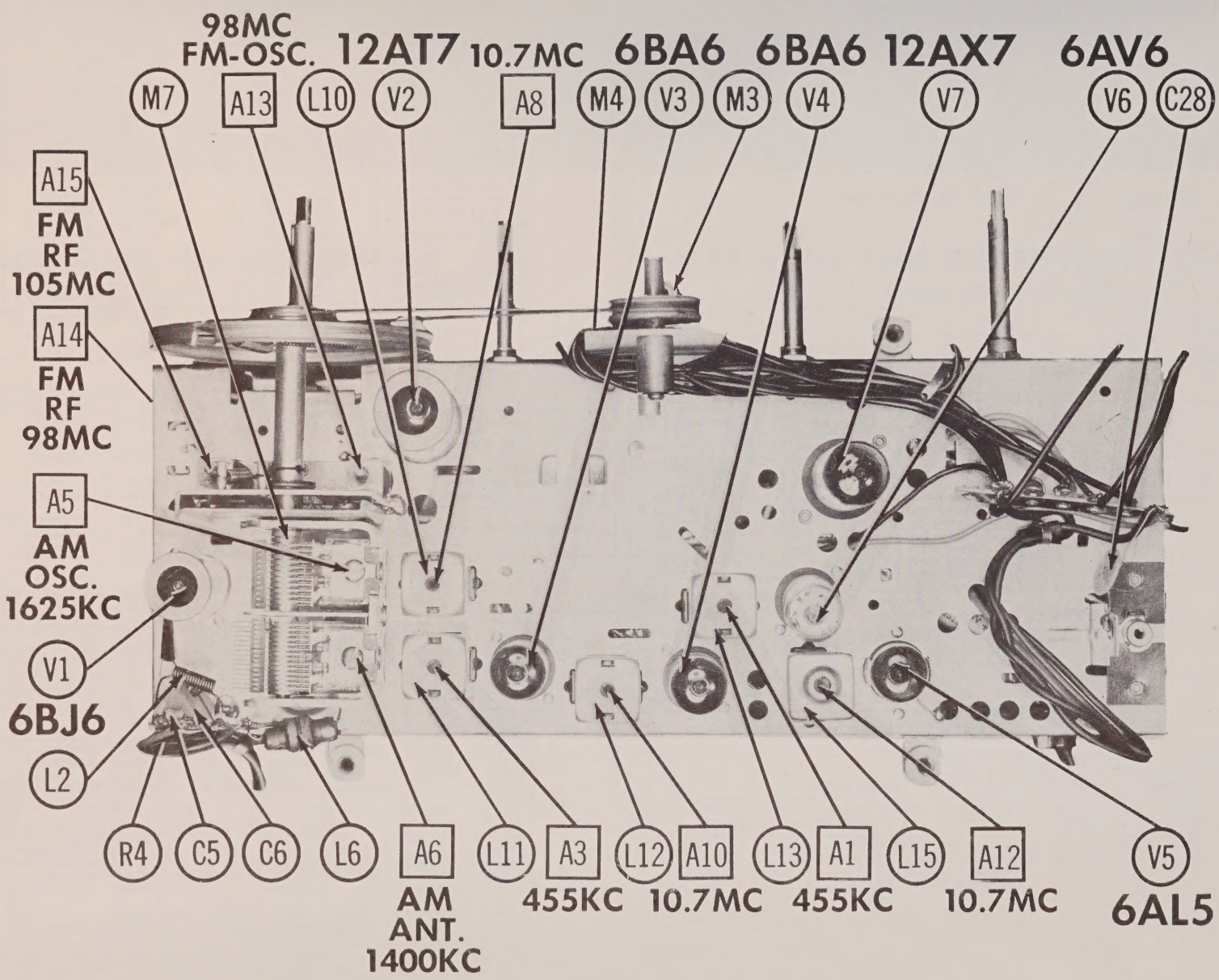


FIG. 2



CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA: Westinghouse PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RETMA BASE TYPE	NOTES
V1	FM RF Amp.	6BJ6	6BJ6	7CM	
V2	Osc. -Mixer	12AT7	12AT7	9A	
V3	1st. FM IF Amp. - AM IF Amp.	6BA6	6BA6	7BK	Chassis V-2180-13
V4	2nd. FM IF Amp.	6BA6	6BA6	7BK	
V5	Ratio Detector	6AL5	6AL5	6BT	
V6	AM Det. -AVC	6AV6	6AV6	7BT	
V7	Phono Pre-Amp. - 1st. AF Amp.	12AX7	12AX7	9A	
V8	2nd. AF Amp.	6C4	6C4	6BG	
V9	3rd. AF Amp. - Phase Inverter	12AX7	12AX7	9A	Chassis V-2235-1
V10	Output	6V6GT	6V6GT	7S	
V11	Output	6V6GT	6V6GT	7S	
V12	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C1A	▲30	400	V-14612-1	AFH3-39		C035		FP396.14	TVL-3787	
B	■40	400								
C	▲30	300								
C2A	▲30	400	V-14612-1	AFH3-39		C035		FP377	TVL-3787	
B	■40	400								
C	▲30	300								
C3	4	50	V-4637	PRS150/4		BR550		TC30	TVA-1303	
C4	4	50	V-14717-1	PRS150/4		BR550		TC30	TVA-1303	Note 1
C5	4.7		V-9926-3	SI4. 7NP0	TCZ-4.7	TZ07	NP0K-4R7	ZT-5547	5TCCB-V47	
C6	5000		V-5596	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C7A	5000		V-9044-1	BPD-2X005	DD3-502	DK079	822-005	DCD-525	5HK-2D5	
B	5000									
C8	5000		V-5596	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C9	1.5		V-5658-9	SII. 5NP0	TCZ-1.5	TZ04	NP0K-1R5	ZT-5515	5TCCB-V15	
C10	47		R2CC30RK470K							
C11	220		V-10710-2							
C12	47		V-10710-3							
C13	5000		V-5596	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C14	100		R4CC21YY101M	SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	
C15	800		V-9863-1	BPD-0008	D6-801	G067	GP2K-801	UC-538	5GA-T8	
C16	.05	400	RCP10W2503M	P488-05	DF-503	CUB4S5		PT415	4TM-S5	
C17	.002	600	RCP10W6202M	P688-002	D6-202	CUB6D2	801-002	PT622	6TM-D2	
C18	5000		V-5596	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C19	100		R4CC21YY101M	SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: Westinghouse PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
T1	117VAC @.83A	640VCT .114ADC	5VAC @2A	6.3VCT @3.7A	V-14615-1	PC-8422	P-3173	R-14A	P9314	24R05U

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: Westinghouse PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.	NOTES
T2	5.8KΩ CT	7.8Ω	V-14614B				Z1013		

SPEAKER

ITEM No.	RATINGS: SIZE	RATINGS: FIELD	RATINGS: V. C. IMP.	REPLACEMENT DATA: Westinghouse PART No.	JENSEN PART No.	QUAM PART No.	NOTES
SP1	12"	PM	7.8Ω	V-14733-1		12A10Z7.8	① 12" PM speaker used in Model H-840C12
				V-15072-1 ①			
SP2	3½"	PM	12.8Ω	V-14734-1		3A15T	

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: Westinghouse PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant.	.1Ω						
L2	RF Choke	0Ω		V-10644-1	19-1000		4602	1 Microhenry
L3	FM RF Coil	0Ω	0Ω	V-11240-1				
L4	FM Osc. Coil	0Ω		V-11239-1				
L5	AM Ant. Loop	.1Ω						
L6	AM Ant. Loading Coil	1.5Ω		V-6157-1	19-3160		4644	145 Microhenries
							4606	2.7 Microhenries IRC part #CLA
L7	RF Coil	2.2Ω		V-9099-5	19-1002			Pickup winding =1.7Ω
L8	AM Osc. Coil	3.5Ω	9Ω	V-10944-2				
L9	RF Coil	0Ω		V-4886-14	19-1002		4606	2.2 Microhenries
L10	1st. FM IF	.6Ω	1Ω	V-9688	16-3487	FM-254	1463	
L11	1st. AM IF	4.2Ω	10.5Ω	V-10619				Tertiary winding =11Ω
L12	2nd. FM IF	2.2Ω	2.4Ω	V-11264-1	16-3487	FM-254	1463	
L13	2nd. AM IF	15Ω	15Ω	V-10350-1	16-6754	BC-355	12-C6	
L14	Fil. Choke	0Ω		V-4886-2	19-1000		4602	1.1 Microhenries
L15	Ratio Det.	2.4Ω	.3Ω	V-9828	17-3494	FM-255	1465	Tertiary winding =.35Ω

PROPERTY OF L. B. BLANK 3924 MEADE DENVER, COLORADO

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C20	.002	600	RCP10W6202M	P688-002	D6-202	CUB6D2	801-002	PT622	6TM-D2	
C21A	5000		V-9044-1	BPD-2X005	DD3-502	DK079	822-005	DCD-525	5HK-2D5	
B	5000									
C22	330	500	RCM20A331M	1468-331		5W5T33		MCE243	1FM-335	
C23	.001	600	RCP10W6102M	P688-001	D6-102	CUB6D1	GP2K-102	PT621	6TM-D1	
C24	.001	600	RCP10W6102M	P688-001	D6-102	CUB6D1	GP2K-102	PT621	6TM-D1	
C25	.001	600	RCP10W6102M	P688-001	D6-102	CUB6D1	GP2K-102	PT621	6TM-D1	
C26A	100									
B	50		♦V-15096-1							
C	2500									
D	2500									
C27	.01	400	RCP10W4103M	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C28	5000		V-5596	BPD-005	DD-502	K080	801-005	DC-525	5HK-D5	
C29	.05	400	RCP10W4503M	P488-05	DF-503	CUB4S5		PT415	4TM-S5	
C30	.002	600	RCP10W2203M	P688-002	D6-202	CUB6D2	GP2K-202	PT622	6TM-D2	
C31	.02	200	RCP10W6202M	P288-02	DF-203	PJ2S2		PT412	2TM-S2	
C32	100		R4CC21YY101M	SI100	D6-101	UC-531	GP1K-101	UC-531	5GA-T1	
C33	.002	600	RCP10W6202M	P688-002	D6-202	CUB6D2	GP2K-202	PT622	6TM-D2	
C34	18									
C35	.01	400	RCP10W4103M	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C36	220		V-10710-2							
C37	.01	400	RCP10W4103M	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C38	.01	400	RCP10W4103M	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C39	.01	400	RCP10W4103M	P488-01	D6-103	CUB4S1	GP2-333-103	PT411	4TM-S1	
C40	.047	400	V-10157-4473M	489ZX-047	DF-503	PJ4S47		PT4147	4TM-S47	

Note 1. Model H-480C12 uses 8MFD ⓐ 50V (part #V-15045-1) in this application.
♦ Items C26A, C26B, C26C, C26D, R33A, R33B and R1B are combined in one unit.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	Switch		V-15094-1 ♦					TV-Phono-Radio switch-Note
B	1Meg	½						Loudness & switch tapped ⓐ 450KΩ & 700KΩ
R2A	1Meg	½	V-14378-1	Q11-137	A47-1Meg-S	AB-697	U-54	Bass
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R2A
R3A	1Meg	½	V-14378-1	Q11-137	A47-1Meg-S	AB-697	U-54	Treble
B	Shaft		Not Req.	Not Req.	KSS-3	AK-4	Not Req.	Attach to R3A

♦ Items C26A, C26B, C26C, C26D, R33A and R33B are combined with this control.
Note. Some versions may use an alternate control part no. V-15095-1.

RESISTORS

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Westinghouse PART No.	IRC PART No.	NOTES
R4	4.7Meg	½	RC20AE475M	BTS-4.7Meg	
R5	1000Ω	½	RC20AE102M	BTS-1000	
R6	1000Ω	½	RC20AE102M	BTS-1000	
R7	10KΩ	½	RC20AE103K	BTS-10K	
R8	100Ω	½	RC20AE101M	BTS-100	
R9	220Ω	½	RC20AE221M	BTS-220	
R10	3.3Meg	½	RC20AE335M	BTS-3.3Meg	
R11	6800Ω	½	RC20AE682M	BTS-6800	
R12	330KΩ	½	RC20AE334M	BTS-330K	
R13	2.2Meg	½	RC20AE225M	BTS-2.2Meg	
R14	47Ω	½	RC20AE470M	BTS-47	
R15	1000Ω	½	RC20AE102M	BTS-1000	
R16	1Meg	½	RC20AE105M	BTS-1Meg	
R17	10KΩ	½	RC20AE103K	BTS-10K	
R18	47Ω	½	RC20AE470M	BTS-47	
R19	1000Ω	½	RC20AE102M	BTS-1000	
R20	220Ω	½	RC20AE221M	BTS-220	
R21	68KΩ	½	RC20AE683M	BTS-68K	
R22	22KΩ	½	RC20AE223K	BTS-22K	
R23	1Meg	½	RC20AE105M	BTS-1Meg	
R24	47KΩ	½	RC20AE473M	BTS-47K	
R25	2200Ω	½	RC20AE222M	BTS-2200	
R26	220KΩ	½	RC20AE224M	BTS-220K	
R27	10Meg	½	RC20AE106M	BTS-10Meg	
R28	6800Ω	½	RC20AE682M	BTS-6800	
R29	1500Ω	½	RC20AE152K	BTS-1500	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Westinghouse PART No.	IRC PART No.	NOTES
R30	100KΩ	½	RC20AE104K	BTS-100K	
R31	1500Ω	½	RC20AE152K	BTS-1500	
R32	100KΩ	½	RC20AE104K	BTS-100K	
R33A	100KΩ	½		BTS-100K	
B	100KΩ	½	♦	BTS-100K	
R34	150KΩ	½	RC20AE154K	BTS-150K	
R35	100KΩ	½		BTS-100K	
R36	10KΩ	½	RC20AE103K	BTS-10K	
R37	4700Ω	½	RC20AE472K	BTS-4700	
R38	270KΩ	½	RC20AE274K	BTS-270K	
R39	470KΩ	½	RC20AE474M	BTS-470K	
R40	1500Ω	½	RC20AE152K	BTS-1500	
R41	100KΩ	½	RC20AE104K	BTS-100K	
R42	1Meg	½	RC20AE105M	BTS-1Meg	
R43	1500Ω	½	RC20AE152K	BTS-1500	
R44	47KΩ	½	RC20AE473K	BTS-47K	
R45	47KΩ	½	RC20AE473K	BTS-47K	
R46	470KΩ	½	RC20AE474M	BTS-470K	
R47	270Ω	2	RC40AE271M		
R48	470KΩ	½	RC20AE474M	BTS-470K	
R49	220KΩ	½	RC20AE224K	BTS-220K	
R50A	4100Ω	12	V-10054-5		
B	820Ω	5			
R51	1000Ω	½	RC20AE102K	BTS-1000	
R52	47KΩ	½	RC20AE473K	BTS-47K	
R53	4700Ω	½	RC20AE472K	BTS-4700	

♦ Items R33A, R33B, R1 , C26A, C26B, C26C and C26D are combined in one unit.

PARTS LIST AND DESCRIPTIONS (Continued)

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA Westinghouse PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	SHURE PART No. CARTRIDGE	SHURE PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. NEEDLE	REMARKS
M1								

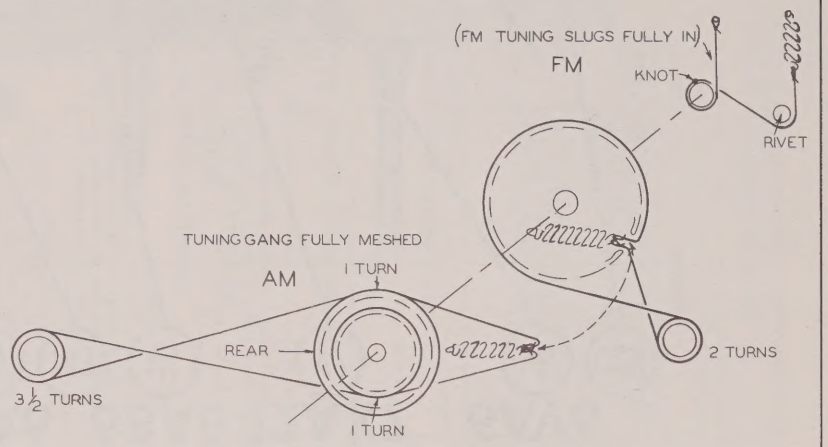
PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

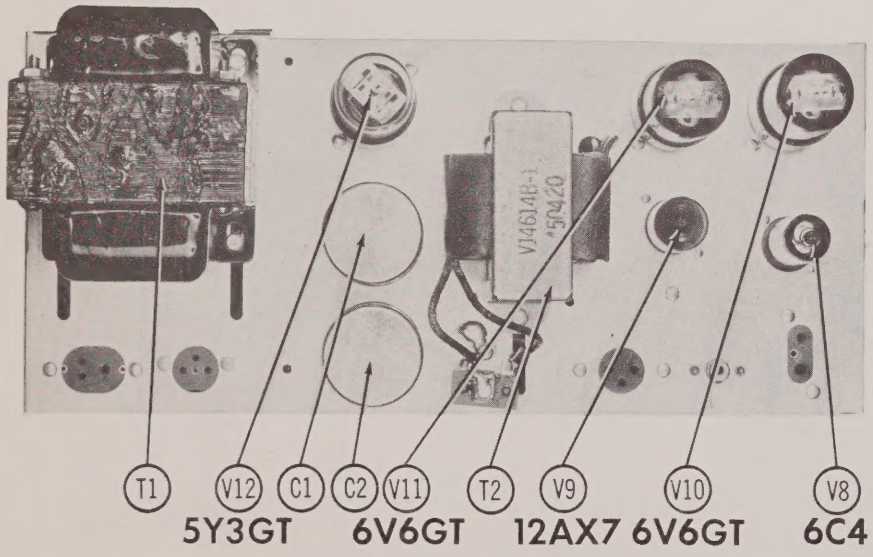
ITEM No.	REPLACEMENT DATA Westinghouse PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	REMARKS
M2		†GE-11 or ♦GE-11D	†AC-410 or ♦†AC-410D1 or ♦AC-410D	†W-66TPS or ♦†W-66DS or ♦W-66TPD	†Jewel ♦ Diamond

MISCELLANEOUS

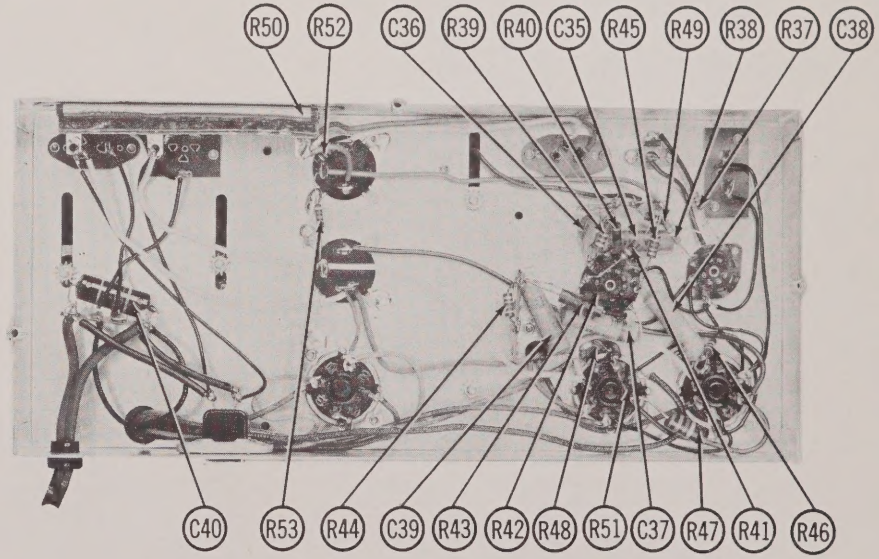
ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M3	Dial Light		Radio, #47, Bayonet
M4	Dial Light		Radio, #47, Bayonet
M5	Pilot Light		Phono Indicator, #47, Bayonet
M6	Jewel Light		#47, Bayonet
M7	Tuning Cap.	V-10662-1	2 Gang (22-489MMF, 25-177MMF)
M8	Switch	V-10651-1	AM-FM (Rotary)
M9	Switch	V-15063-1	Phono-Drawer Switch (Slide type)
	Cabinet	V-1377-1	Model H-469R12
	Cabinet	V-1377-2	Model H-470R12
	Cabinet	V-1381-1	Model H-480C12
	Knob	V-11490-3	Tuning
	Knob	V-11490-4	TV-Radio-Phono switch
	Knob	V-11746-4	Bass or Treble
	Knob	V-14683-2	On-off-loudness
	Knob	V-14683-3	AM-FM switch
	Dial Glass	V-14729-1	
	Dial Pointer	V-14731-1	
	Jewel	V-14773-1	Models H-469R12, H-470R12
	Jewel	V-14773-2	Model H-480C12
	Medallion	V-14511-2	"W"
	Medallion	V-14938-1	"Symphony Hall"



DRIVE CORD STRINGING



POWER SUPPLY CHASSIS-TOP VIEW



POWER SUPPLY CHASSIS-BOTTOM VIEW